

MAR 5 1923

# Railway Age

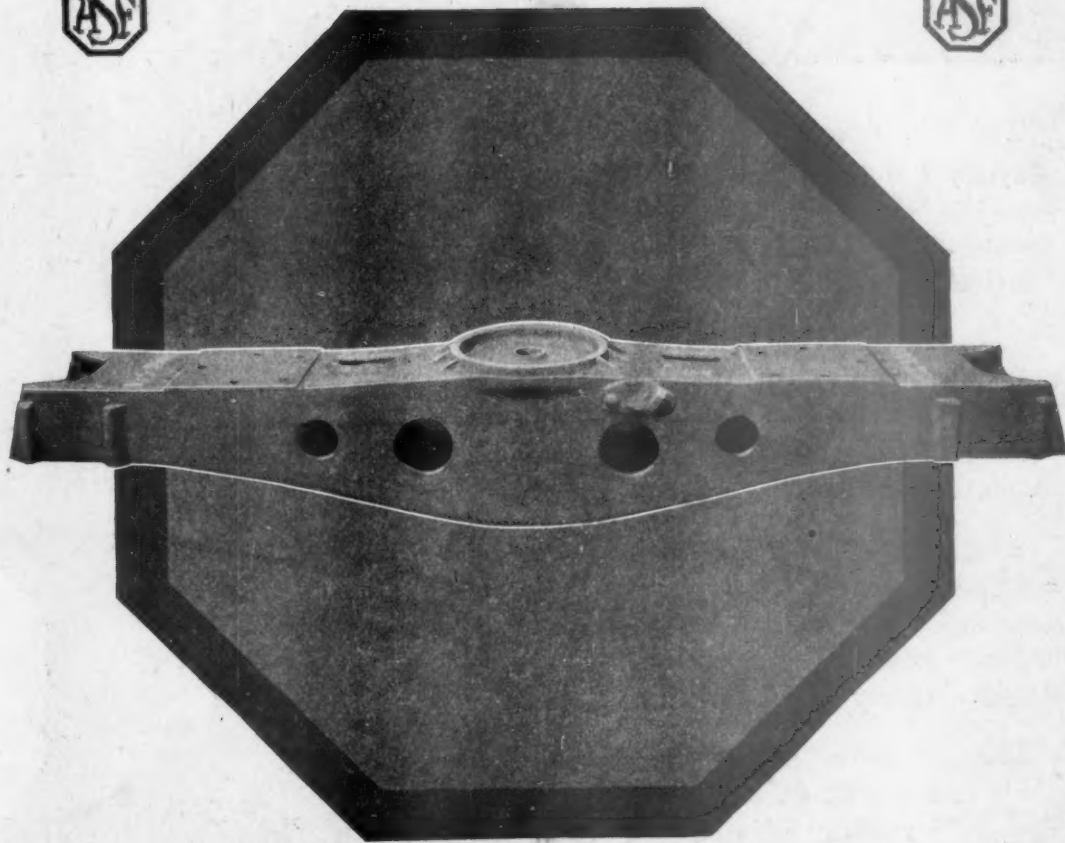
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SIXTY-EIGHTH YEAR

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## AMERICAN STEEL FOUNDRIES

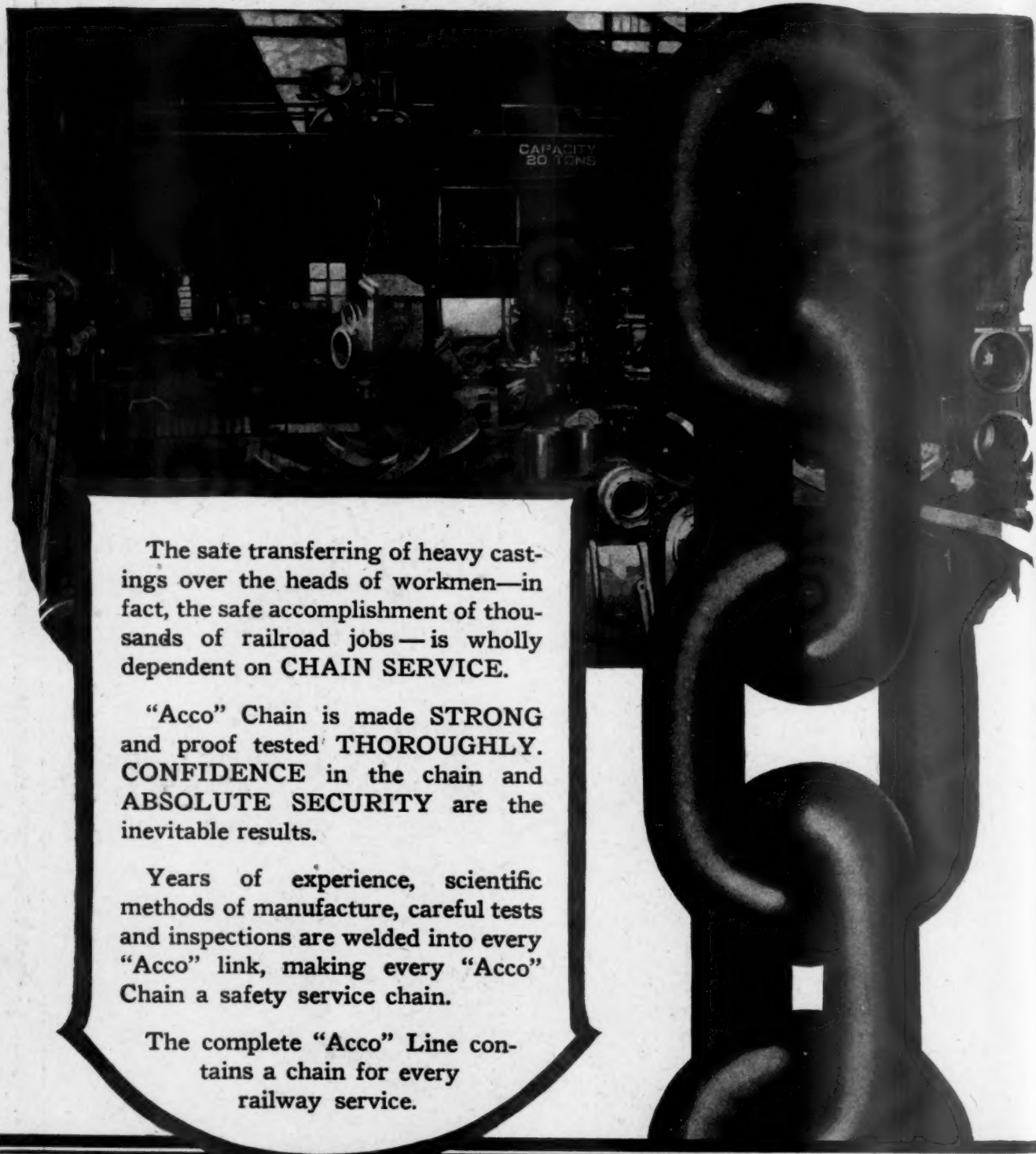


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# EDITORIAL



## Railway Age

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### The Improvement in Railway Results

N OBODY CAN STUDY the statistics showing the operating and financial results gained by the railways within recent months without being given a feeling of optimism regarding the immediate future of the carriers. Furthermore, nobody who is not deeply prejudiced against private management can study these results without being given a feeling of pride regarding the marked progress the railways have been and are making under great difficulties.

In spite of the shop employees' strike, which on most railways has not been terminated and the effects of which are still being felt on all, the railways have now for more than four months been handling a larger freight business than ever before in any corresponding season in history. In spite also of the large reduction of rates made last year and of the shop employees' strike, they have been increasing, as compared with corresponding periods in the past, the net return earned by them. At the present time the only circumstances which prevent those who desire to see the railways prosper from being optimistic are certain unreasonable demands that are being made for further immediate reductions of rates and the threat of adverse legislation presented by the election to Congress last fall of a large number of very radical politicians.

The most outstanding and significant recent development on the railways has been the progress made by the managements in effecting economies in operation. The shop employees' strike largely increased certain operating expenses just as they would have been reduced if it had not occurred. In spite of the strike, however, and although a freight business greater than ever before was handled, the operating expenses of the railways in the last four months of 1922, after coal mining was generally resumed, and traffic became normal, were over \$400,000,000 less than in the same months of 1920, the last previous year when a large traffic was handled. A fact of even greater significance is that in these four months operating expenses were only about \$42,000,000 more than in the same months of 1919, under government control, and that in December, 1922, they were almost \$6,000,000 less than in the same month of 1919.

In other words, at the conclusion of the year 1922 the managements, although the railways were handling a record-breaking freight business, had not only wiped out all the increase in expenses that occurred in 1920, after the railways were returned to private operation, but had finally reduced the expenses below what they were under government operation. When it is considered that in December, 1922, the railways handled a substantially larger business and paid a higher average wage per employee and a higher average price per ton for coal than in December, 1919, and yet ac-

tually reduced the total operating expenses incurred, the progress that has been made within the last three years in increasing the efficiency and economy of operation becomes a matter of great significance.

While the managements of the railways have been increasing the efficiency of operation until they have finally got operating expenses down to a relatively lower basis than they were under government operation, the governmental taxing authorities have continued as usual to increase taxes. In the last four months of 1919 railway taxes were \$74,000,000; in the last four months of 1920, \$99,000,000, and in the last four months of 1922, \$104,000,000. In spite of this increase in taxes, however, net operating income in these months of 1922 showed a satisfactory tendency. In the last four months of 1919, under government operation, it was less than \$190,000,000, and, including claims for under-maintenance since allowed, the Railroad Administration incurred a deficit of approximately \$175,000,000. In the same months of 1920 the net operating income earned was \$220,600,000; while in the last four months of 1922 it was over \$301,000,000. This represented a return at the annual rate of only about  $4\frac{1}{3}$  per cent upon the valuation, and was actually less than was earned in the same months of 1921; but in the latter part of 1922 the railways were bearing the effects not only of the shop employees' strike but of a recent general reduction of freight rates. Much encouragement can be drawn from the fact that in the closing months of 1921 net operating income showed a tendency to decline, while in the closing months of 1922, in spite of the shopmen's strike and the reduction of rates, it was showing a tendency to increase.

Not only are the railways getting control of their operating expenses, handling an increased business and deriving an increasing net return from it, but, as already noted, they are charging the public reduced rates. Although they rendered more transportation service to the public in the last four months of 1922 than in the same months of 1920, the total earnings derived by them from handling it were \$320,000,000 less. This reduction of earnings was principally due to an average reduction of 13 per cent in freight rates since they reached their peak as a result of the last advance made in 1920.

A fact of much greater significance is that, although in the last four months of 1922 the railways rendered more transportation service to the public than in the last four months of 1919, under government control, the service rendered actually cost the public less than in 1919. The total earnings of the railways in the last four months of 1919 were \$1,900,000,000 and the deficit incurred was about



\$175,000,000, making a total of \$2,075,000,000. Deducting from this the \$74,000,000 in taxes that was paid to the public, we have a net cost to the public for this four months' railroad transportation in 1919 of \$2,001,000,000. The total earnings of the railways in the last four months of 1922 were \$2,086,000,000. Deducting from this the \$104,000,000 in taxes that was paid, we find that the net cost to the public of the transportation rendered to it was \$1,982,000,000, or about \$19,000,000 less than in 1919.

The facts show that private operation under the Transportation Act is resulting in the railways gradually working back to a normal basis of earnings and expenses and is conferring far greater benefits upon the public than it is upon the railways. Nevertheless, the Transportation Act and private management are at present being subjected to the most bitter criticism. An extensive propaganda is being carried on for legislation which would not only repeal the Transportation Act, but would be intended to destroy private operation, and might have that effect. The results of the operation of the railways under the Transportation Act—the actual facts regarding the wiping out of the deficit incurred under government control and the great reductions in operating expenses and in the total cost of transportation to the public which have been made since the Transportation Act has been in effect—afford a conclusive and convincing answer to this propaganda.

From the standpoint of the railways, however, no permanent benefits will be gained by the increases in the efficiency and economy of operation which are being achieved unless the facts are presented to the public in every community of the country over and over again in a clear and understandable way. At this time, when they are just beginning to recover from the terrible effects of government operation and of the prolonged business depression which began soon after government operation was terminated, the railways have the best case for intelligent and reasonable regulation that they have ever had since effective regulation was begun in this country. The managements of the railways should not and will not relax in their efforts to make operation more efficient and economical. But they should individually and jointly put forth greater efforts than ever before to present effectively to the public the facts which make so conclusive a case for private management under a constructive policy of regulation. The future prosperity of the railways and the salvation of private ownership depend as much, or more, upon the education of public opinion as upon continued increase in the efficiency and economy of operation.

Railway traffic has been running for the past several weeks so far ahead of all previous records for this season of the

#### Orders in February

year as to make it fairly certain that, unless the unexpected happens, the rail carriers will be confronted with serious difficulty when it comes to handling properly all the traffic that they will be called upon to move later in the year. The desire on the part of the railways to meet this situation in as adequate a manner as possible under the circumstances is unquestionably the principal reason why orders for equipment in January and February were in as satisfactory volume as they proved to be. It is, of course, likely, on the other hand, that much

of the equipment now on order may not be received in time to be of greatest service in the 1923 rush and similarly the fact must not be overlooked that cars and locomotives alone are not sufficient. The large appropriations which have been made for yards, terminals, engine houses, shops, etc., should be sufficient proof of that. Orders for cars and locomotives in January and February were large. Locomotive purchases for domestic use in the United States reported in the issues of the *Railway Age* in January totaled 358, and in February, 486. A large share of this business was placed by the Pennsylvania, that company having ordered 225 locomotives in January and having supplemented this order in February with an additional 275. The Pennsylvania has placed orders for 615 locomotives in the past six months. Freight car orders in January totaled 11,025 and in February, 10,266, making a total so far this year of 21,291, which gives 1923 a very fair start. Passenger train car orders in January totaled 559 and in February, 122. It happens, however, that a large share of the January orders was for express refrigerator cars, 150 of these having been ordered by the American Railway Express Company and 300 by the Union Pacific. Considering the volume of car and locomotive orders placed in 1922 and the manner in which the favorable business of last year is being continued into the present year, it is evident that the railways should be able this year to accomplish a great deal towards making up their deferred requirements for equipment.

#### DOMESTIC CAR AND LOCOMOTIVE ORDERS

	Locomotives	Freight cars	Passenger cars
January .....	358	11,025	559
February .....	486	10,266	122
Total, two months....	844	21,291	681

American railroad men who do not follow closely railway conditions in other countries would doubtless be somewhat surprised at the concern reflected in the British technical press over the proposed colors for locomotives and cars of the newly consolidated British railways.

#### Bright Colors and Cleanliness

Color for locomotives has not been a moot matter in this country for many years and that of passenger cars scarcely more so. Probably little interest could be aroused in a proposal to paint locomotives a rich red or to bedeck passenger cars with blue and cream enamel. Yet, according to our contemporary, the *Railway Gazette* (London), the directors of several British railways believe that "the question of colors is one of importance." The matter of color seems to be closely connected with cleanliness and, in England at any rate, this latter quality is thought to have a favorable effect on railway morale. There is some recognition of this fact in America, at least as far as employees are concerned. One road which assigns its locomotives makes a practice of keeping spick and span those locomotives whose crews have maintained perfect records for several years. The traveling public, however, is not similarly dealt with. It has to travel by trains manned by crews with poor or indifferent records as well as by those whose records are perfect. Consequently many of the locomotives and more of the cars make a rather poor impression. With the total absence of color on locomotives and the use of striking colors by but few roads for passenger equipment, dirt is made less noticeable. Consequently the temptation to leave it on is greater. Cleanliness, however, we believe, is as much approved by the American people as by any Europeans and many roads in this country would probably find that a little greater application in this direction would be highly appreciated by employees and the general public—whose good will it is so much to the advantage of the roads to cultivate.



The net ton-miles moved by the railways in November were in excess of those for any other November in the history of

### Good Earnings in January

the American railways. It is very likely that the December total will similarly be the largest figure ever reported for that month. Revenue car loadings in January were likewise so heavy and so far above the figures for any of the previous Januarys since car loadings began to be reported as to make it certain that January, 1923, ton-miles or traffic will exceed all records for this season of the year. This favorable condition is being reflected in a decisive manner in the earnings reports for the month which the carriers are now filing with the Interstate Commerce Commission or otherwise making public. The reports show for January a very substantial increase in gross revenues as compared with January last year. Practically all of the railroads—there are still a few exceptions—have now succeeded in writing off the cost of the shopmen's strike. In general, it may be said, therefore, that most of the carriers now find themselves in a position to derive full advantage of the increased revenues and are able to reflect the improved situation fully in their net income. It is gratifying to observe the substantial increases in net operating income in this year's January figures as compared with last. The Illinois Central, for instance, one of the first roads to make its report public, shows a net operating income of \$2,879,533, an increase of \$1,302,900 over last year. The Northern Pacific has changed a deficit to a net; its January, 1923, net after rentals is \$1,021,272, an increase of \$1,645,835 over January, 1922. Figures for a number of typical roads follow:

EARNINGS IN JANUARY

Road	Total operating revenues	Increase or decrease	Net operating income	Increase or decrease
Baltimore & Ohio.....	\$20,556,970	\$6,287,210	\$3,609,494	\$2,086,389
Boston & Maine.....	6,313,059	531,685	def. 1,428,605	-1,372,576
Illinois Central.....	16,595,122	3,970,805	2,879,533	1,302,900
Lehigh Valley.....	5,123,087	-10,998	def. 929,033	-1,279,514
New York Central.....	34,464,710	8,596,028	4,628,495	916,158
N. Y., N. H. & H.....	9,911,556	1,187,053	def. 780,587	-1,673,152
Norfolk & Western.....	6,898,909	871,238	592,835	396,510
Northern Pacific.....	7,888,013	1,900,187	1,021,272	1,645,835

It is apparent that the Missouri, Kansas & Texas has been "sold" to the merits of water treatment in railway service.

### The M. K. & T. Improves Its Water Supply

The evidences pointing to this conclusion are unmistakable. The road has not only contemplated action in this direction and made recommendations in its budgets for the wherewithal to effect it, but it has actually authorized the necessary expenditures and set in motion the machinery to carry out its conspicuously broad intentions. The Missouri, Kansas & Texas is about to build as many as 25 water treating plants at designated points on its lines for the purpose of making bad water better. This is attacking the water supply problem with a vengeance. Indeed if this road had not already acquired some experience in this direction it might be suspected of indiscretion in launching so extensive a program. But the M. K. & T. has already had occasion to observe the results of water treatment. It evinces an understanding of the relation which the quality of water bears to the upkeep and performance of locomotives and the multitude of conditions that depend upon the locomotive. It discloses a recognition that when the quality of water is not altogether what it should be it can be improved. It manifests a belief that when water can be improved the benefits resulting from the change are sufficient to over-balance the expense of effecting the improvement; and finally it indicates a belief that water treatment on a small scale will pay much more bounteously when conducted on a large scale. Taking into consideration that the railroads indiscriminately are facing a

period of very large, if not unprecedented, traffic demands, a period when the ability to meet these demands (most economically at least) will not depend so much upon the acquisition of additional equipment as upon the more continuous and economical performance of the equipment in use, the conclusion may not be avoided that the M. K. & T. has exercised good judgment in thus looking to the improvement of its water supply. In providing against boiler scale and leaky flues, it will have materially removed one of the chief obstacles to economical and satisfactory train performance.

### The Cost of Dining-Car Service

The letter on dining-car service printed in this issue, when taken with the earlier one to which it refers, will be useful mainly as an indication of the fact that tastes differ, and that customs in different parts of the country are not exactly alike. It is true that dining cars do not please 100 per cent of their patrons 100 per cent of the time; but this is not to be taken (without investigation) as a reflection on the efficiency of the management of the cars. Hotels have the same fly in their ointment. A little inquiry will afford basis for crediting dining-car managers with marked ingenuity and enterprise, as well as with the simpler factors of efficiency. The first-class hotel attempts to deal with its patrons on the basis of their particular personal habits; and the dining-car makes the same attempt, under far greater handicaps. We have compiled some data on actual dining-car service, which will be found elsewhere in this number. About the only "moral" to be drawn from this elaborate record of work done and money expended is that modern civilization has become so perfected and refined that a great railroad is obliged to go on spending a half million dollars yearly, year after year, merely to satisfy the tastes of travelers who, if necessary, could get along in tolerable comfort with much less elaborate service. If we were to criticise the railroads in connection with the dining-car service, we should say that they ought to publish more prominently the whole cost of conducting it. The cost of hauling a heavy extra car on a fast train is not often mentioned. There are, no doubt, many runs on which, to cover the whole outlay, the prices of the meals served would have to be increased from 50 to 100 per cent.

## A Feast or a Famine

FOR SEVERAL MONTHS the roads were out of the market for ties. As a result production fell to a low point and the producers were forced to sell the few that they cut at prices far below those of two years ago. Recently the roads have come back into the tie market rapidly, and the demand is now far exceeding the supply. The inevitable result is a marked increase in cost. There is nothing new about this condition. It has happened repeatedly since the earliest days of railroad-ing and will continue until the roads learn that uniform purchases promote economy.

There is no condition incident to the use of ties which leads to wide fluctuations in purchases of this character. In fact, the reverse is true. Ties deteriorate more from the action of the elements than from any other single cause and this action is fairly uniform from year to year.

In addition to forcing a rise in prices and thereby inflating their costs unnecessarily by this irrational method of purchasing, the roads suffer from the disarrangement of their working programs resulting from delayed deliveries. Ties cannot be produced ready for insertion in the track in a day. It requires time to build up a tie-producing organization. After the ties are cut more time is required to get them out to

the railway and on cars. If the ties are to be treated, and the majority of them are now, adequate time must be allowed for seasoning them if they are to be treated properly. This alone requires from six months to two years, depending on the kinds of woods and the place of seasoning. Indeed delivery cannot now be made until late next season on many of the orders for treated ties which are now being placed. By delaying their purchases in this manner, the roads are not only paying higher prices than would have been necessary three months ago, but they are facing the alternative of accepting inferior ties or delaying their renewal beyond the most economical season.

It is axiomatic in business that uniformity in output contributes to economy in production. The tie producing industry is dependent solely on the railways for its sales and the roads must pay its operating costs, high or low. They have every incentive, therefore, to so regulate their purchases as to reduce the cost of production of their product to the minimum for any saving so effected will accrue to them. There is no phase of tie production which would cut costs more than uniformity in purchases throughout the year and from year to year.

## New Books

*Railroad Melons, Rates and Wages.* By Charles Edward Russell. 332 Pages, 5½ by 8 in. Bound in Cloth. Published by Charles H. Kerr & Co., Chicago.

This book is noted on its title page as being "A Handbook of Railroad Information." If its title or the name of its author are not sufficient to describe what kind of an effort it is, the dedication reads, "To the wage-earning workers, whose labor, skill and fidelity to the public's trust enable the inadequate and broken-backed railroad system of the United States to be operated and me to travel about my native land, I inscribe these records with my humble thanks."

The book, first of all, is a demagogic sort of a volume. It essays, apparently, to rake-up and parade before its readers about all of the dishonorable part of American railroad history that it is possible to contain in a book of its size. There are a number of faults with the manner in which this is done. After the fashion of its kind, the book very carefully and very naturally refrains from discussing any of the honorable part of the record. Still less does it discuss any of the remedies which public opinion in general and the Transportation Act in particular have provided as means of preventing a recurrence of the evils in which Mr. Russell takes such particular delight. This means that Mr. Russell's story is not complete and that it is, therefore, special pleading of a low order and quite unfair.

But, at the same time, it is also true that the author has not made such a good job of telling about the evils that did take place. He gives the book something of an air of being an exposé of things devious and dark as if he, by diligent research and much burning of the midnight oil had come upon happenings hitherto not open to the light of day. And yet, after all, he only rehashes in a quite inferior way, details long since told and discussed in many quarters. In other words, he repeats a story that has years ago been told in much more explicit and readable fashion in various I. C. C. reports or in such volumes as Adams' "Chapters of Erie," Ripley's "Railroads, Finance and Organization," Daggett's "Railroad Reorganization" and others of a fair sized list of likeable productions. And in Mr. Russell's book there is one strange omission. He forgets to mention rebates. In fact, he also neglects a number of railroads and a number of occurrences that would have given him very fruitful material. Reading of the books mentioned will give him much of this data. Perhaps, however, he already knows about the details

and is saving them for another volume similar to the present one.

Mr. Russell has gleaned his story from the history of such properties as the New York Central, the Southern Pacific, the Rock Island, the Frisco, the New Haven, etc. He condemns particularly the feature of land grants, although he omits to notice that if it had not been for the land grants construction of many of the lines into then undeveloped country would have very probably been much deferred. He has a lot to say about a level of rates sufficiently high to yield a return on watered stock, although he only very vaguely touches upon the provisions of Section 15-a, which require the commission to establish rates to yield a reasonable return upon the value of property used in transportation as determined by the commission with the assistance of the federal valuation. Capitalization has nothing to do with it. Naturally, he very carefully neglects to say that earnings in recent years have by no means approached the 5¾ per cent set by the I. C. C. as reasonable. He has an abhorrence of unearned increment. He is very strong for the idea that railway valuation should equal only the present market value of railway securities. Government ownership similarly appeals to him. Somebody ought to tell him, however, just how large a proportion of railway stocks and bonds are owned by savings banks and insurance companies in which so large a proportion of wage earners' funds are invested.

We cannot recommend this volume to our readers. It is not interestingly enough written to begin with. Mr. Russell does not tell the story of all the evils in railroad history in a sufficiently adequate or scholarly manner to make the reading of the volume worth the trouble. We cannot recommend it because of any value it may have as giving the other side of the case—the railroad employee's view. It does not bring the facts sufficiently up-to-date to do that. We believe, also, that the average employee has undoubtedly heard about the Transportation Act with its provisions for regulation of security issues, etc., although Mr. Russell apparently has not had time to give it much study.

The reason we are reviewing the book is because it is now running serially in the columns of the Locomotive Engineers Journal, the official organ of the Brotherhood of Locomotive Engineers. It has for a long time been a matter of great surprise to many observers to note the radical character of much of the material which appears in that particular publication and in other publications like it. It will be matter for equally great surprise to find the editors of the Journal running serially in their columns a somewhat inferior, very much biased, and rather too socialistic book such as this. The readers of the Journal are really entitled to have better material offered to them to read. It is difficult to understand why the Journal's editors selected the book or what useful purpose it may be intended to serve.

A SYSTEM APPEAL BOARD, which will consider discipline, wages, interpretations of agreements, and the drafting and negotiation of new or amended agreements and other matters relative to labor, has been formed by the Kansas City Southern and its affiliated lines, the Texarkana & Ft. Smith, the Arkansas Western and the Poteau Valley. The members of the board are the auditor, the general superintendent of transportation, the superintendent of machinery, the chief engineer and the superintendents of the Kansas City terminal, the Northern and the Southern divisions. The superintendent of personnel of the Kansas City Southern will act as chairman and the supervisor of wages and working agreements, as secretary of the board. Monthly meetings of the board will be held at Kansas City, Mo. Discipline cases can be settled only by the unanimous vote of all the members present at meeting, but other matters within the jurisdiction of the board require only a three-fourths vote.



## Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

### Who Pays the Bill?

CHICAGO.

TO THE EDITOR:

Apropos of a letter to the editor entitled "Taxation for Motor Trucks" which was published in your issue of February 17, page 411, I have noticed a sign which one of the electric railways operating in Michigan has placed in its car. This sign reads as follows:

#### Ship by Electric and Save the Highways

#### PROBLEM IN ECONOMICS

If a Heavy Truck earns 50 cents per mile and damages the public highways to the extent of one dollar per mile and the shipper of freight saves nothing and the truck owner keeps the 50 cents and the taxpayer pays the dollar

*Where Does the Taxpayer Get Off?*

TRAVELER.

### Winning the Workers

NEW YORK, N. Y.

TO THE EDITOR:

Senators Brookhart and LaFollette, backed by individuals who are credited with being capable of currying favor with the masses, so called, apparently are ready to urge the enactment of legislation looking to the nationalization of the railroads.

Whether the executives of the roads are preparing to launch a campaign to offset the machinations of hostile legislators is unknown to the writer. Of course it is to be supposed that the railroad interests are not asleep while inimical forces are pushing forward, but my point is that time should not be lost in spreading constructive education among the employees of the respective roads. With the employees favorably disposed to management it will be easier to get the good will of the public.

It may be all right to turn out copy for newspaper articles, but no matter how strong such articles may be, they probably will fall short of winning the support of the railroad workers. It is the heart-to-heart talk that will exert the greatest potency, and assuming such to be the case, those responsible for the operation of our railroads may find it prudent to set about to get men who can carry messages to Garcia. The average railroad president is not a spellbinder nor has he the time to devote to frequent speechmaking in railroad shops or elsewhere along the line. Moreover, his message probably would not "go over" because of the innate prejudice employees have for statements coming from employers or their representatives. Therefore it would seem essential to enlist the services of men who have made a keen study of how to spread sound economic views among the workers.

With proper handling the views of the human element, now all too awry, can be revised along constructive lines. If the educators know thoroughly the psychology of the human factor, much may be done to show up the futility of railroad "baiting," as well as the hollowness of such claptrap as that

if the railroads were taken over by the government, the public weal would be conserved.

Rightful understanding of the human element presumably would beget wholesome support, which in turn would tend to decrease operating expenses while increasing operating efficiency; as a corollary the public would be better served. With management, employees and the public working together, less would be heard about government ownership of transportation entities.

JAMES J. McCABE.

### Dining Car Criticism

CONCORD, N. H.

TO THE EDITOR:

How is it that no one comments on the letter from Omaha, printed by you last November, complaining about dining car accommodations? I have been looking for some defense of the dining car. The practices that prevail in the eastern part of the country are not of the kind suggested by that letter. I believe that the great majority of level headed passengers are fairly well satisfied with dining car meals in this region—the New England roads, the New York Central, the Lackawanna, the Erie, the Pennsylvania, the Reading, and so on. The prices are high; but so are prices at hotels nowadays.

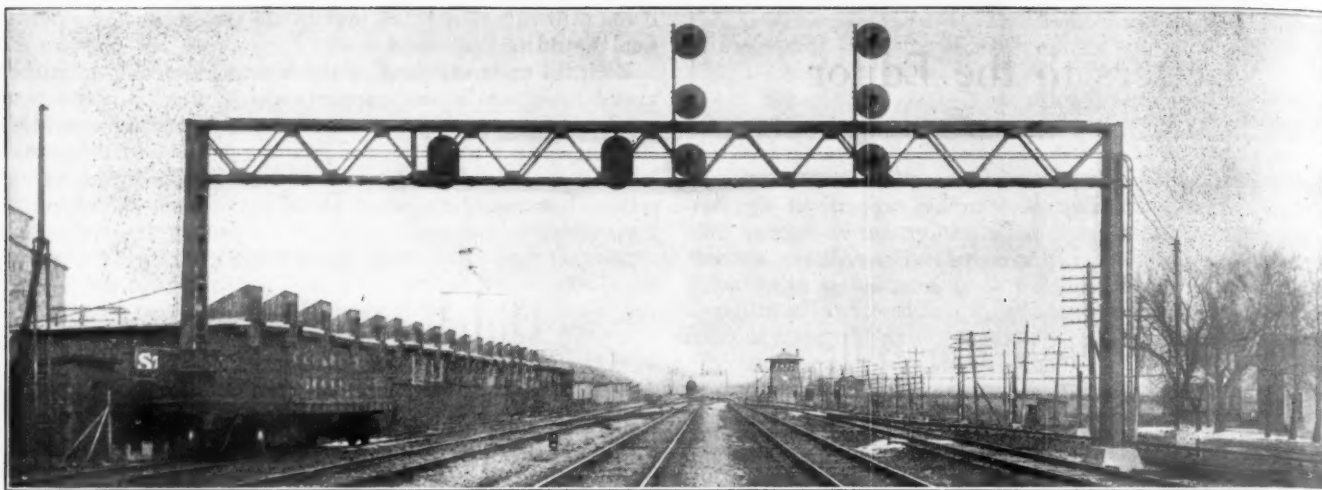
To have a fixed price per meal is an attractive idea, in the abstract, but what is the use? A small percentage at least of passengers on heavy trains will always want to order what they want, and as long as dining-car managers favor a la carte (because it enables them to economize in purchases, as compared with table d'hôte) we might as well put up with it. The fixed price would drive away some passengers, possibly a considerable number. I am informed by an officer of the Boston & Maine that on their cars a good many checks are for sums lower than the lowest amount ever proposed for table d'hôte meals.

As for tips, we might as well put up with these also. To the pleasant waiter we are willing to hand out the coin; the surly and unthankful it is our duty to rebuke, but, alas! we are not organized; and as the majority of us are cowards, the brave must go it alone. It may be that in Nebraska, and the wilds beyond, the traveling public carries its weapons where they are at hand when wanted; but here in the effete east we follow the fashions—although, we admit, the fashions are tainted too much with the habits of the new-rich. But, whatever we may say about fashions, there would be no virtue in your correspondent's proposal to abolish tips by printing a request that passengers "Kindly refrain" from offering them. It can't be done. People who lead in tipping are not kindly disposed toward the austere reformer.

In short, fashion continues to rule us pretty effectively. Table cloths have, indeed, come to be an expensive luxury; but the dining car is an expensive luxury from the beginning. When I conclude that it is desirable to economize to the extent of using enameled tin tables and paper napkins, I propose to go the whole figure and stay away from the dining car altogether. And, seriously, why not? Except on long journeys, one usually needs food but once en route, and it is only a pleasant diversion to put up with chocolate and peanuts for a single meal! And I can find friends who do not eat either of these caloric foods who yet will readily find ways to evade the exactions of the dining car, without any inconvenience whatever.

The true function of the dining car is to provide for the passenger whose time is very valuable. On trains where there are not many of this class of people, the diner is of necessity a costly luxury. Finally, I think your correspondent must be a mere theorist; for he suggests making a profit on running a dining car! Where is the practical man who has ever thought of such a thing?

B. R. H.



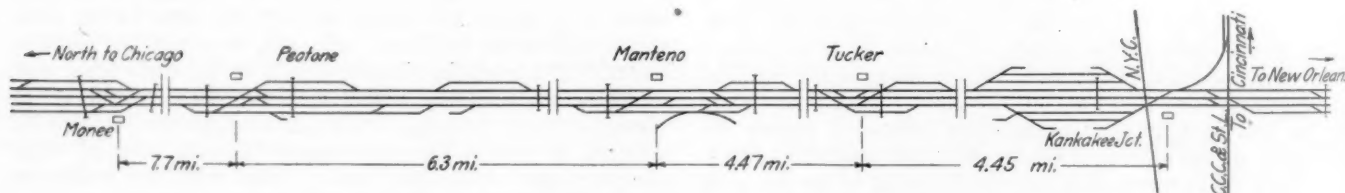
North Bound Home Signal Bridge at Peotone

## Signaling Increases Capacity of Three Tracks

Center Track Signaled Both Ways, With Interlocking  
Allows Fast Trains to Pass Slow Ones

**T**HE AUTOMATIC SIGNALING and interlocking plants will play an important part in handling the traffic on the 21-mile stretch of third track now nearing completion on the Illinois Central between Monee, Ill., and Kankakee. The outstanding feature of this installation is the fact that the routing of trains on the three tracks is left to the tower-men, conflicting moves on the middle track which is signaled for both directions of traffic being prevented by electrically interlocked circuits between the towers. The flexibility with which the routing may be changed prevents stops and delays and is thus considered to be the most important characteristic of the system as contrasted to three-track installations on

This district is just south of the four-track Chicago suburban zone, and in addition to the Illinois Central traffic also handles all trains of the Cleveland, Cincinnati, Chicago & St. Louis between Kankakee and Chicago. An average of approximately 32 passenger and 58 freight trains are handled in this territory daily. The preponderance of traffic is north-bound between 4 a. m. and noon and southbound for the remainder of the 24-hour period. This section of the line, then double track, was equipped in 1906 with two-arm lower-quadrant semaphore automatic signals, which are now being replaced by three-color indication light signals. The installation of automatic block color-light signals extends north of



Track Plan Showing All Passing Tracks and Crossovers Between Monee and Kankakee

other roads with established hours for certain directions of traffic, and which are broken only on written train orders from the dispatcher.

The two outside tracks are signaled for the normal direction of traffic, the blocks being approximately one mile in length, while the middle track is signaled with one-mile blocks for both directions of traffic. As shown in the track diagram this territory is split up by five interlockers, the track layouts and the crossovers being so arranged at these plants that a towerman can divert a train from either outside track to the center track or the reverse. The advantage of this arrangement is that, for example, with a slow freight going north on the outside track a following passenger train can be switched over to the middle track to pass the freight and then be switched back to the normal northbound track at the next plant. As the middle track is signaled in both directions, it may be used for southbound trains in the same manner.

Monee on the four tracks to Olympia Fields, a distance of six miles. At the four new interlockers and also at Kankakee Junction, single unit color indication light signals are used for the home signals. An article describing the reconstruction of this line, including the reduction of grades and the addition of the third track, was published in the *Railway Age* of December 16, 1922, page 1123.

### Train Movements Controlled by

#### Traffic Direction Signals

An interesting feature of this installation is that no set rule is established for direction of traffic on the middle track, the routing of trains on the three tracks being left to the levermen in charge of the interlockers. The advance signals on the middle track, which govern movements out of the interlockers, are considered as "traffic direction" signals. An explanation of the control of these signals will show how the duplex signaling of the middle track increases the track



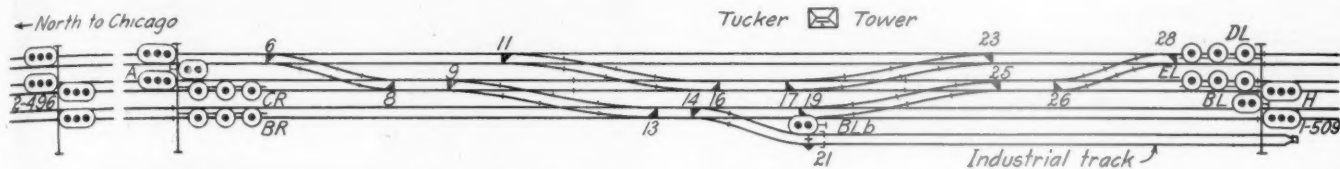
capacity of this 21-mile, three-track section. The fundamental characteristic of this installation, in contrast to other similar installations, is that the control and operation of signals for the middle track at adjacent interlockers, is so interlocked electrically as to prevent conflicting train movements, the presence of the train preventing a change in the signal routing.

When a leverman desires to switch a train over from an outside track to the middle track all signals of the plant governing movements to the middle track must be placed at danger. In order to reverse the lever to clear the advance signal governing the entrance to the middle track it is necessary to get an "unlock" from the leverman at the tower in

the time each train passes and the time of its arrival at the next tower, also indicating which track the train used. A separate telephone line of two No. 9 copper wires has been placed on the signal pole line with telephones in each of the five towers, this circuit being used primarily for direct communication between towers. In addition to this line a telephone in each tower is connected to the regular telephone dispatching circuit.

#### All Signals Are the Light Indication Type

The automatic block signals on this installation are the three-color light indication type of the Union Switch & Signal Company, Type R. The "red" light on the bottom indicates

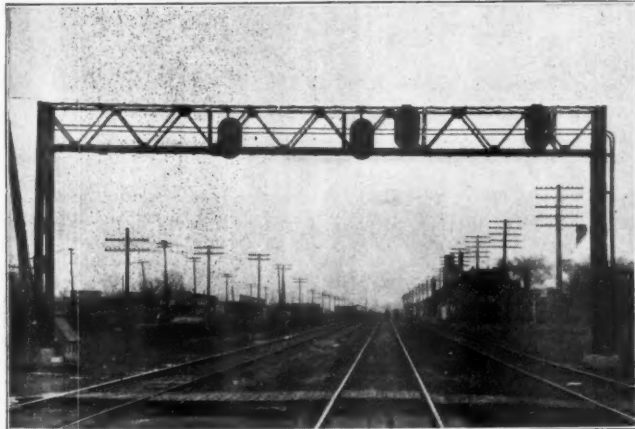


Track and Signaling Plan of the Interlocking Plant at Tucker, Ill.

advance. For example, to clear the northbound signal A at Tucker, the leverman at Tucker (see signaling plan) must first phone to the leverman at the Manteno interlocking, requesting an "unlock"; when the Manteno leverman pushes the button marked "unlock from Tucker," a lamp at Tucker indicates that all is clear. The Tucker leverman must then reverse the lever A before the button at Manteno is released. This lever A remains in the reversed position until a change in the direction of traffic over the middle track becomes necessary.

If a following train is to use the middle track and the leading train has passed the first automatic block signal

"stop," the immediate block is occupied; the middle light, which is yellow, indicates "caution," the second block is occupied; and the top light, which is green, indicates "clear," meaning that two or more blocks are unoccupied. Only one of these lights can be illuminated at once. However, the flash over from one indication to the other is so quick that the signal is not dark for a perceptible time. These signals are designed for long range daylight or night indication; even under adverse conditions of the sun shining into the lens



Typical Automatic Block Signal Location

No. 2-496, the leverman calls the Manteno interlocker, asking for a "permissive," at the same time holding his own "permissive to Manteno" button in. As soon as the Manteno towerman pushes his button marked "permissive from Tucker," the traffic direction signal A governing the entrance to the middle track will again be cleared automatically. For train movements southbound over the middle track, a separate set of buttons performing similar functions is used.

It should be understood that the only possible opposing train movement onto this middle track must be made from the next interlocking. As the lock circuit between the two towers, controlling the operation of the levers, is broken through all the intervening track relays, a signal indication permitting a reverse move cannot be given until the middle track between the two plants is entirely unoccupied.

The towermen are required to set down on a record sheet



The "Unlock" and "Permissive" Buttons Are Located on the Operator's Table

a minimum range of 4,000 ft. is assured, while at night the indication can be seen readily for miles. At the same time, on account of the signal being mounted so low, an engineman in a locomotive cab can see the indication plainly up to the time he is within 75 ft. of the signal.

In contrast to the automatic block signals, the home signals at the interlocking plants are the single unit, three-color indication, search-light signals, made by the Hall Switch & Signal Company. In this signal but one electric lamp is used, the three-color indication being secured by one inch colored roundels mounted in a movable vane at the focus of the lens and operating in a plane parallel to the lens. The

lens of this signal is 10 in. in diameter, surrounded by a shield disk 3 ft. in diameter.

All signal lights are ordinarily illuminated by alternating current at 8 volts. This 8-volt circuit is fed through the front contacts of a 110-volt a.c. vane relay which is normally energized. However, in case the a.c. supply should be cut off the vane relay drops and throws the lights on the 10-volt signal storage battery. As soon as the line is again energized the lights are switched back to the a.c. feed automatically.

All signals on the installation are mounted on four-track signal bridges. In order further to increase the contrast between the automatic signals and the home signals the three-color automatic signals are mounted on a line above the bottom girder of the bridges while the home signals consist of three of the search-light signals mounted one above the other at 5 ft. spacing, the bottom one being on a line with the bottom girder of the bridge.

#### Local Control Circuits of Automatics

The track circuits extend from signal to signal, the maximum length being 6,000 ft. The red light for the danger indication is energized through a back contact of the 2-ohm track relay when released due to a train in the block. When the train passes out of the immediate block this relay is picked up, thus breaking the back contact which extinguishes the red light and then making a front contact, which illuminates the yellow light giving the caution indication. This circuit is fed through a back contact of the 640-ohm line relay; therefore as soon as the train passes out of the second block, the line relay picks up, the yellow light is extinguished and the green light is illuminated, giving the "clear" indication.

Two cells of 84 a.h. Exide battery connected in multiple are used for each track battery. All the light signals and the line circuits at a signal bridge location are operated from a battery of two sets of five cells of the 84 a.h. storage cells connected in multiple. Each track battery and signal battery is kept under floating charge by the use of a Leich non-tune double wave type rectifier with an adjustable external rheostat for each rectifier.

#### The Pole Line and A. C. Feed

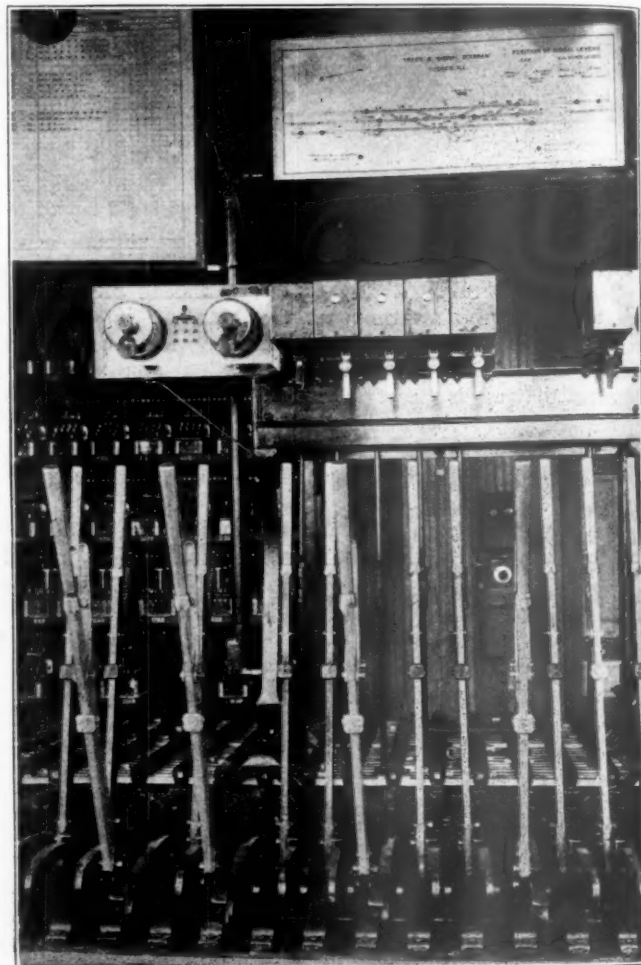
The signal pole line in this territory was rebuilt and an additional cross-arm added. All line circuits are No. 12 weatherproof copper clad. The R.S.A. standard dead-end construction, using strain insulators, was used at all signal locations. No. 14 insulated solid copper wire is tapped to the line wire "pig tails" and is carried in a made-up cable to carbon block arresters on the board mounted in the center of the relay box.

The 440-volt a.c. feed for the floating battery charge is carried on the two No. 6 copper wires on the top arm on the field side. Alternating current at 2,300 volts is purchased from the power company at Matteson, Monee, Bradley and Tucker. This voltage is cut down to 440 volts by a transformer for the signal line feed. At each signal location is a small 120-v. air-cooled, outdoor type transformer to reduce the voltage to 110 volts for the operation of the rectifiers and lighting transformers. Sectionalizing switches are placed at each power feed so that the line can be cut off, cut through or fed from either end.

#### Four Electro-Mechanical Interlockers Installed

Electro-mechanical interlocking plants were installed at Tucker, Manteno, Peotone and Monee to handle the crossovers, and the passing track and industry switches. These machines are all of the same size, with a 36-lever mechanical and an 8-lever electrical unit. The three tracks continue straight through each of these plants with a crossover for each direction between both the northbound and the middle track and also between the southbound track and the middle

track, as is shown in the layout of the Tucker plant. The layout of the crossover permits parallel simultaneous movements to or from the middle track and outside tracks. The main line crossovers are 378 ft. long, using No. 18 frogs, which permit train movements at a comparatively high speed. At Monee, the four tracks from the north converge to three tracks. At Kankakee Junction on the south end of the three-track section, additional levers were added to the existing electric plant to provide for the three-track to two-track junction. With the installation of these interlockers all main line switches entering the middle track in this three-track territory are operated by the towermen, with the exception of two sets of crossovers at Kankakee junction which are locked



Electro-Mechanical Interlocking Machine at Tucker

with electric switch locks controlled by the Kankakee junction towerman.

All switches are handled by mechanical levers, pipe-connected. No derails are used on the main tracks, but Hayes type derails are used at the industry tracks. The electric levers are used for the signals, and as the switches are lined up for the several routes, selection is made to the proper signal. Thus a single electric lever may be used for several signals and in one case an electric lever operates five signals. This illustrates the economy of the electro-mechanical machine over the straight mechanical type, which would require a lever for each signal and in addition an electric lock for the home signal levers.

At the interlockers the signals used for back-up moves and train movements out of passing and industry tracks, are the two-color-light dwarf type, which is mounted between tracks on horizontal concrete foundation. The signal case was designed to incline four degrees from the vertical, mak-



ing it possible to receive a better close up indication. The interlocking machines are all Union Switch & Signal Company electro-mechanical Type S-8.

### No Trunking Used

It is noticeable that no wooden trunking was used except for the bootleg connections to the rail on either the automatic signals or the interlockings. All wires from the tower to the relay boxes are carried in factory made cables of No. 14 copper insulated wire. Where highways cross the tracks in the limits of an interlocking, the cables are carried over the highway, being supported on each side by a 25-ft. steel pole. Parkway cable buried 18 in. below the base of the rail is used for all rail connections.

The wiring on all signal bridges is carried in galvanized iron conduits, Crouse-Hinds condulets being used at all turns and outlets.

The installation of these interlocking plants and automatic signals was handled entirely by signal department forces of the Illinois Central.

## Louisville & Nashville Authorized to Issue Stock Dividend

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION on February 24 issued an order authorizing the Louisville & Nashville to issue \$45,000,000 of capital stock to be distributed as a dividend on condition that certain holdings of stock of affiliated carrier companies shall not be disposed of without first procuring permission from the commission, and that no expenditures made prior to October 1, 1922, shall hereafter be capitalized by the issue of bonds or other securities to reimburse the treasury.

By a report and order in this proceeding entered December 17, 1921, the commission disposed of so much of the company's application as related to its first and refunding mortgage bonds, but deferred consideration of its request for authority to issue \$53,000,000 of capital stock, or such portion thereof as the commission might permit, by distributing the same pro rata among its stockholders as a dividend. Additional evidence has been recently submitted in support of the proposed stock dividend.

No objection to the granting of this part of the application was presented.

The company has an authorized capital stock of \$125,000,000, of which \$72,000,000 was outstanding. On September 30, 1922, its funded debt unmatured account showed a book liability of \$244,074,595, of which \$41,190,535 was held by or for the applicant and \$202,884,060 was actually outstanding.

The unmatured funded debt actually outstanding as of that date was more than 2.81 times the par value of its outstanding stock. The amount of such debt, however, will be less than twice the par value of its outstanding stock after the distribution of the stock dividend authorized.

To justify the proposed stock dividend the applicant contended that a stock base of at least \$125,000,000 is necessary to enable it to meet its present and future financial requirements, including the refunding of outstanding bonds, without exceeding the 3 to 1 ratio prescribed in its first and refunding mortgage. This contention assumes, the commission said, that its pecuniary needs are to be met largely, if not entirely, through bond issues, but it may be that a substantial portion of its capital needs can be met, hereafter as heretofore, by appropriations from income or surplus.

The applicant urged that the stock dividend should be authorized because a great part of its income, which might

have been paid to its stockholders, has been used to improve and add to its properties. In this connection it asserts that the amount of its outstanding stock is small in comparison with the extent, value and importance of its properties, and that its surplus far exceeds the amount of the proposed dividend. It presented evidence to show that its investments aggregated \$153,363,800 on June 30, 1902, and \$371,453,832 on September 30, 1922—an increase of \$218,090,032; that \$216,555,626 of this increase was on account of road and equipment (including \$1,939,865 improvements on leased railway property) and \$1,534,406 thereof on account of securities and other assets; and that between those dates there was an increase in its capitalization of but \$125,408,512.

Since there is evidence, the report says, that no proceeds of capital stock or of long-term obligations, issued prior to June 30, 1902, were in its treasury on that date, the record establishes that the applicant expended and charged to its investment accounts, during the period stated, \$92,681,520 which has not been capitalized. The balance sheet as of September 30, 1922, shows a book surplus of \$82,912,437, investments aggregating \$371,453,832, and total assets of \$432,068,206.

The company contended that it has the absolute legal right to distribute, in the form of a stock dividend, its entire surplus, regardless of the nature of the assets of which it consists, but the commission holds that it should authorize the capitalization of those assets of the carrier only which have been provided and which are intended for continuing productive use in the service of transportation. Such assets are referred to as "capitalizable assets." Regarding these the commission says in part:

The book investment of the applicant in affiliated companies on September 30, 1922, was \$22,564,217, of which \$18,385,158 was invested in stocks. We are of the opinion that, ordinarily a carrier may properly capitalize investments in the stock of another corporation where and only where, the latter is the owner of operated railway property and the carrier's holdings are sufficient and essential to give it control of that corporation and it appears that such control will probably be permanent. Since our order herein will prevent the applicant's disposing of any stock of the Nashville & Decatur Railroad Company or of the Central Transfer Railway & Storage Company without first procuring permission from us in this proceeding, its present holdings of stock in these companies will be treated as capitalizable assets. The applicant holds a majority of the stock of the Nashville, Chattanooga & St. Louis and of the Louisville, Henderson & St. Louis, and may be permitted to capitalize these holdings under the rule above stated. Special circumstances justify our authorizing it to capitalize its stock holdings in three other companies. The applicant and the Southern Railway Company are joint and equal owners of all the stock of the Woodstock & Blocton Railway Company, and operate their respective trains over its road, each retaining for itself the revenues earned and bearing its proportion of the cost of maintenance and of jointly operated switching service. They are the virtual owners of the properties of this company. The applicant holds two-thirds, and the Chesapeake & Ohio one-third, of the stock of the Lexington Union Station Company and they jointly use its property. In order to encourage the construction and use of union stations, a carrier may properly be allowed to capitalize its actual investments in the stocks of union station companies, whether or not its holdings give it control. And, for similar reasons, the applicant will be granted authority to capitalize its holdings of stock in the Missouri & Illinois Bridge & Belt Railroad Company. It holds 9.09 per cent, and other carriers the remainder, of the stock of that company, the properties of which are used by them to cross the river at St. Louis. The applicant's book investment in the stocks of these seven companies is \$13,641,416. Our order will contain a provision concerning the stocks of the five companies last mentioned similar to that relating to the Nashville & Decatur stock. The applicant has consented to such a provision. The present record does not justify the finding that the applicant's investments in the stocks of other affiliated companies are capitalizable.

The applicant's balance sheet as of September 30, 1922, shows \$72,000,000 of capital stock and \$202,884,060 of long-term obligations actually outstanding; and the applicant concedes that \$10,995 of government grants should also be treated as a capital liability. Its actual capitalization on that date may therefore be stated as \$274,895,055. The nominally issued and nominally outstanding

long-term obligations of the applicant will be dealt with in a subsequent paragraph of this report.

We may recapitulate as follows:

<b>Capitalizable Assets:</b>			
Investment in road and equipment.....		\$302,634,179.08	
Improvements on leased railway property.....		1,834,377.69	
Sinking fund (proceeds of mortgaged property sold).....		299,997.13	
Miscellaneous physical property (real estate held, but not used, for carrier purposes).....		927,859.27	
Investment in stocks of affiliated carriers.....		13,641,415.66	
Working capital (including material and supplies).....		30,000,000.00	
<b>Total capitalizable assets.....</b>			<b>\$349,337,828.83</b>
<b>Less Actual Capitalization:</b>			
Stock .....	\$72,000,000.00		
Funded debt .....	202,884,060.00		
Governmental grants .....	10,995.02	274,895,055.02	
<b>Difference .....</b>			<b>\$74,442,773.81</b>

In addition to the actual capitalization above stated, the nominally issued and nominally outstanding unmatured funded debt of the applicant aggregated on September 30, 1922, \$41,190,535, of which \$18,329,000 were pledged, \$2,257,000 were held in sinking or other funds, and \$20,604,535 were held unencumbered in its treasury. Part of the pledged securities have been deposited as collateral to \$12,629,000 of the applicant's primary obligations, all of which are included in long-term debt and, therefore, embraced within the applicant's actual capitalization. To avoid duplication we think it proper to deduct \$12,629,000 from the total securities pledged, leaving a balance of \$5,700,000 which will be considered as part of the applicant's total capitalization in view of the fact that the pledged securities are beyond the applicant's control. For the same reason, the securities held in sinking funds will be treated as capitalization. The applicant contends that the bonds held unencumbered in its treasury should not be regarded as part of its capitalization because they are now in its possession and cannot become an actual liability unless and until they are sold, in which event there would come into existence a corresponding asset in the form of the cash proceeds thereof. Cash, however, may properly be regarded as a capitalizable asset only to the extent necessary to provide adequate working capital, and a suitable allowance therefor has hereinbefore been made. Of the bonds held unencumbered in the applicant's treasury, \$15,862,000 are the applicant's first and refunding mortgage gold bonds, series A, the authentication and delivery of which were authorized by the commission's order in this proceeding entered December 17, 1921, *supra*. These series A bonds cannot be actually issued without our further authorization and do not at present constitute actual capital liabilities. The record indicates, however, that they are regarded by the applicant as taken in reimbursement of the capital expenditures involved in the acquisition of \$15,862,000 of bonds which have been heretofore cancelled. When the bonds are ultimately issued, their proceeds might properly be used for any lawful corporate purpose, and it may be inferred from the record that the applicant desires to be free to devote such proceeds to purposes other than investments in capitalizable assets and for this reason these bonds will be treated as part of the applicant's capitalization. The remainder with negligible exceptions, of the obligations held in the applicant's treasury were under consideration by us in Notes of Louisville & Nashville R. R., 67 I. C. C., 263, and under authority given by our order therein, may be pledged from time to time as security for short-term obligations. Inasmuch as that authority stands unrevoked, these obligations will also be treated as part of the applicant's capitalization. For the purposes of this proceeding the applicant's nominally issued and nominally outstanding long-term obligations have been given consideration, as above indicated, in determining the amount of stock which the applicant may properly be authorized to issue as a dividend.

The evidence establishes (1) that the applicant has a large uncanceled surplus; (2) that its present capitalization is much less than its actual investment in property held for and used in the service of transportation, or any fair value of such property for rate making purposes which we may hereafter fix under section 19a of the interstate commerce act; (3) that the increase in capitalization, which would result from the exercise of the authority to be granted herein, would still leave its capitalization below its actual investment in, and the probable fair value of, such property; (4) that its remaining uncanceled surplus would be sufficient to serve the purposes for which a surplus should be accumulated; and (5) that a larger stock base is necessary to enable it to issue sufficient bonds under its first and refunding mortgage to meet its future needs and at the same time comply with the requirements of the various state statutes referred to in our original report in this proceeding governing investments by savings banks and other investors.

The applicant has elected to capitalize expenditures made prior to October 1, 1922, by a stock dividend, instead of an issue of

securities to reimburse its treasury. Obviously double capitalization should not be permitted. Our authorization of a stock dividend will be made subject to the condition that no expenditures made prior to October 1, 1922, shall hereafter be capitalized by the issue of bonds or other securities to reimburse the applicant's treasury. This condition is acceptable to the applicant and will not prevent it from selling or otherwise disposing of any of its bonds hereinbefore referred to as constituting part of its nominal capitalization.

Commissioner Potter, in concurring in the sanction of the proposed issue of \$45,000,000 of capital stock as a dividend, said he did not wish to be understood as of the opinion that the issue need be limited to the amount named. Commissioner Eastman dissented.

## Some Details of American Dining Car Service

**R**ENEWAL of equipment and repairs to kitchenware and silverware cost a dining car department an average of nine cents a meal. This is one of the unexpected items found in the last annual report of the dining car service on a large railroad, the aggregate of these three items amounting to over \$200,000. Another curious figure was that showing the number of meals furnished to crews, without charge—543,150. This is equal nearly to one-fourth the number served to patrons. Dining cars must be run in round trips and in some cases must do a light business in one direction, though the crew must be as large as in the other direction; and must eat as often as when very busy. Again, a heavy connecting train may be late and the dining car steward may find that his expected patrons have satisfied their wants before he gets a chance at them; but the cooks and waiters have to eat, just the same. Maintaining sufficient cars to be able frequently to supply one for an extra section of an important train adds very materially to the total overhead cost.

Following is a statement of expenses for the 12 months ending with September, 1922, on a system employing about 500 waiters and serving to passengers about two and one-quarter million meals:

### Dining Car Expenses—Twelve Months

	Total cost	Average cost per meal.	Average cost per \$1.00 of revenue.
		Cents	Cents
Maintenance of equipment .....	\$201,220.30	9.00	7.72
Pay rolls .....	1,108,376.83	49.54	42.52
Inspecting service, incidental office expense and telephone service.....	14,275.14	0.64	0.55
Provisions—groceries, meats, vegetables, etc. ....	1,429,190.86	63.88	54.83
Ice, coal and charcoal.....	130,876.42	5.85	5.01
Mineral waters .....	13,463.20	0.61	0.52
Cigars, cigarettes and cards .....	27,113.63	1.21	1.04
Laundry .....	106,238.75	4.75	4.08
Stationery and printing .....	21,626.26	0.96	0.83
Room rent—stewards and crews.....	59,591.62	2.66	2.28
Cleaning cars (inside) .....	57,882.35	2.59	2.22
Miscellaneous expense .....	30,783.68	1.35	1.18
<b>Total operating expenses .....</b>	<b>\$3,200,639.04</b>	<b>143.04</b>	<b>122.78</b>
<b>Total operating revenues .....</b>	<b>\$2,606,768.63</b>		
<b>Loss .....</b>	<b>\$593,870.41</b>		
<b>Average revenue per meal .....</b>	<b>\$1.17</b>		
<b>Average loss per meal .....</b>	<b>0.26</b>		

If to the \$1.23 spent for each dollar received we were to add a reasonable percentage for interest and depreciation the total would be \$1.34; and this takes no account of the extra cost of hauling two seats for each passenger; one in the coach, parlor car or sleeper and one in the dining car (or, if each dining car seat is occupied four times at each meal) an average of one and one-quarter seats per passenger.



# Senator Brookhart's Radical Railroad Bill

## Would Repeal Section 15-a, Base Valuation on Market Value of Securities and Abolish Labor Board

WASHINGTON, D. C.

SENATOR BROOKHART of Iowa introduced in the Senate on February 24 his long promised bill to provide a substitute method for regulating railroad revenues and rates in place of that provided for in the Transportation Act of 1920. The new method is designed to make it possible for the Interstate Commerce Commission to reduce rates to any desired level without too much consideration of the effect on railroad finances and for state railroad commissions or legislatures to reduce intrastate rates without concern as to interference by federal authority on the ground of discrimination against interstate commerce. Possibly also it is intended to reduce the value of railroad securities to a point where their holders would be more ready to exchange them for government bonds, but this was not advanced as one of the merits of the bill mentioned in a statement which the Senator issued expressing the opinion that the President "should immediately call an extra session of Congress for the consideration of this railroad legislation."

It is understood that this has not yet brought about any change in the plans of the President for a vacation trip to Florida next week, upon the adjournment of the Sixty-Seventh Congress, nor in the plans of many members of Congress for various junketing trips. In fact, Senator Brookhart had previously indicated that he did not really expect any action on his bill at this time, but, as he is only filling out an unexpired term in the Senate and must stand for re-election in 1924, it will afford something to talk about during the months to elapse before the more "progressive" Sixty-Eighth Congress comes into being next December. The bill is expected, moreover, to represent a sort of rallying point for many other "progressives," who seek the votes of the farmers by promising them lower freight rates without interfering with the wages of another numerous class of voters, as well as of various groups of socialists, single-taxers, plain radicals and—some say—bolsheviks.

Senator Brookhart referred in his statement to a prediction by Senator Cummins that six months will be required for the consideration of railroad legislation at the next session but he believes that this should be taken up at the earliest possible moment "in order that the great farming communities may secure the relief to which they are justly entitled and to relieve also the traveling public and the shippers in general." About the same time the Interstate Commerce Commission had made public a statement by its statistician that "the present average revenue per ton-mile is pretty well in line with the general level of wholesale prices and there is no reason to believe the general level of rates is retarding the business revival."

Senator Brookhart, however, has little confidence in the Interstate Commerce Commission. He is dissatisfied not only with the principles of the Transportation Act, but also with the percentage of fair return which the commission has held to be reasonable under the act and with the valuation which the commission has used as a basis. His bill first proposes to repeal the rate-making provision of Section 15-a of the act without repealing the "recapture" clause as to the past three years and then directs the commission to find a value not in excess of the fair market value of the outstanding securities of the railroads. No one has ever ascertained the market value of all railroad securities but by applying to the total the market quotations of those securities offered for sale at a time of depressed values, and referring to a statement by C. W. Barron, Mr. Brookhart has stated it to be approxi-

mately \$12,000,000,000. Comparing this with the nineteen billion dollar figure used by the commission, he says his bill will "take seven billion dollars of water out of the valuation."

Even the use of such a low valuation in connection with the present prescribed rate of fair return would hardly have reduced rates during the past two years. For 1921 and 1922 combined the net railway operating income of the railroads, according to the Interstate Commerce Commission reports, was \$1,393,000,000, or an average of \$696,000,000 a year, while  $5\frac{3}{4}$  per cent on \$12,000,000,000 would be \$690,000,000 a year. This leaves out of consideration the year 1920, during which the increased rates, about 12 per cent higher than they now are, were in effect for four months and the railroads actually earned a deficit, but, of course, they were under guaranty for eight months of that year.

Senator Brookhart does not, however, rely entirely on his plan for repealing seven billion dollars of valuation in order to reduce rates. Apparently this low valuation is not to be used for that purpose, because the direction to the commission to base rates on value is contained in Section 15-a which he proposes to repeal. However, his new valuation amendment is to be added to Section 15 of the act, which deals with rate-making, rather than to Section 19-a, which contains the La Follette valuation act. Section 16 of his bill seems to provide a new plan of allowing a "fair and adequate return" on the face value (or value at which issued) of the outstanding bonds and other securities that is not in excess of the interest accruing upon such bonds and other securities. Nothing is said about dividends and possibly this is on the theory frequently advanced by the "progressives" that all stocks represent only water.

The provisions of the bill (S. 4610) are as follows:

SECTION 1. That Title III of the Transportation Act, 1920, is repealed; except that the Railroad Labor Board and officers and employees thereof shall remain in office for such period, not in excess of six months after the passage of this act, as is necessary, in the opinion of the board, to wind up its affairs.

Sec. 2. (a) That all books, papers, and documents of the Railroad Labor Board, together with the unexpended balance of any appropriation made for defraying the expenses for the maintenance and establishment of the board, including the payment of salaries, shall be transferred to the United States Board of Mediation and Conciliation upon the termination of the period provided in section 1. (Provision is also made for the repeal of that part of the appropriation act which cut off the appropriation for the board of mediation.)

Sec. 3. That it shall be the duty of any carrier subject to the Interstate Commerce Act, if such carrier is an express company, sleeping car company, or carrier by railroad other than a street railway, and of its officers, subordinate officials, employees, and agents to exert every reasonable effort and adopt every available means to avoid any interruption in the operation of any such carrier growing out of any dispute between the carrier and the employees or subordinate officials thereof. All such disputes shall be considered, and, if possible, decided in conference between representatives designated and authorized so to confer by the carrier or by the employees or subordinate officials thereof, directly interested in the dispute. If the dispute is not decided in such conference, it shall be referred by the parties thereto to the United States Board of Mediation and Conciliation in accordance with the provisions of the act entitled "An Act providing for mediation, conciliation, and arbitration in controversies between certain employers and their employees," approved July 15, 1913.

Sec. 4. That the first sentence of the third paragraph of section 1 of such act of July 15, 1913, is amended to read as follows:

"The term 'employees,' as used in this act, includes (1) employees and subordinate officials of any carrier subject to the provisions of this act, whether or not the cars upon which or in respect to which they are employed are held or operated by the carrier under lease or other contract. The term 'subordinate official'

includes officials of any such carrier, of such class or rank as the Board of Mediation and Conciliation shall designate by regulation formulated and issued after such notice and hearing, as the board may prescribe, to such carriers and employees and subordinate officials or carriers and organizations thereof, directly to be affected by such regulations."

SEC. 5. That the fourth paragraph of section 1 of such Act of July 15, 1913, is amended to read as follows:

"A common carrier subject to the provisions of this act is hereinafter referred to as an 'employer,' and the employees or subordinate officials of one or more such carriers are hereinafter referred to as 'employees.'"

SEC. 6. That paragraphs (3) and (4) of section 13 of the Interstate Commerce Act, as amended, are hereby repealed.

SEC. 7. That section 13 of the Interstate Commerce Act, as amended, is amended by adding at the end thereof a new paragraph to read as follows:

"(3) Nothing contained in this act shall be construed to give the commission authority to initiate, modify, establish, or adjust any rate, fare, or charge, or any classification, regulation, or practice relating thereto, for the transportation of passengers or property, or for the receiving, delivering, storage, or handling of property, wholly within one state, whether or not such rate, fare, charge, classification, regulation, or practice (a) bears any relation to any rate, fare, or charge, or any classification, regulation, or practice relating thereto, for the transportation of passengers or property in interstate or foreign commerce; (b) gives any undue or unreasonable preference or advantage to any particular person, company, firm, corporation, or locality, or any particular description of traffic, or (3) subjects any such person, company, firm, corporation, or locality to any undue or unreasonable prejudice or disadvantage."

SEC. 8. That the first sentence of paragraph (12) of section 20a of the Interstate Commerce Act, as amended, is amended to read as follows:

"(12) After June 30, 1923, it shall be unlawful for any person to hold the position of officer or director of more than one carrier."

SEC. 9. (a) That section 15a of the Interstate Commerce Act, as amended, is repealed. Such repeal shall not relieve any carrier from its duty to hold as trustee for, and to pay to the United States, any income in excess of the fair return accruing prior to such repeal.

(b) Any part of such excess income placed in a reserve fund established and maintained by the carrier under section 15a or which would, except for the repeal of such section, be required to be placed in such fund, may be used by the carrier for any lawful purpose.

(c) Any part of such excess income required to be paid to the commission under section 15a, but not so paid, may be recovered by the commission in the same manner as if such section had not been repealed. Any part of such excess income which is recovered by or paid to the commission and which is in the general railroad contingent fund established and maintained by the commission under section 15a or which would, except for the repeal of such section, be required to be placed in such fund, shall be covered into the Treasury of the United States as miscellaneous receipts.

(d) The repeal of section 15a shall not be held to invalidate any loan, or any purchase of transportation equipment of facilities, or lease thereof, or any investment in obligations of the United States made prior to such repeal through the use of moneys in the general railroad contingent fund. The commission shall, as soon as practicable after the passage of this act, sell, upon such terms and conditions as it deems proper, any equipment or facilities so purchased. All moneys received from any such sale, and all payments of principal or interest made upon any such loan or obligation of the United States, and all rentals from any such lease shall be covered into the Treasury of the United States as miscellaneous receipts.

SEC. 10. That section 15 of the Interstate Commerce Act, as amended, is amended by adding at the end thereof two new paragraphs to read as follows:

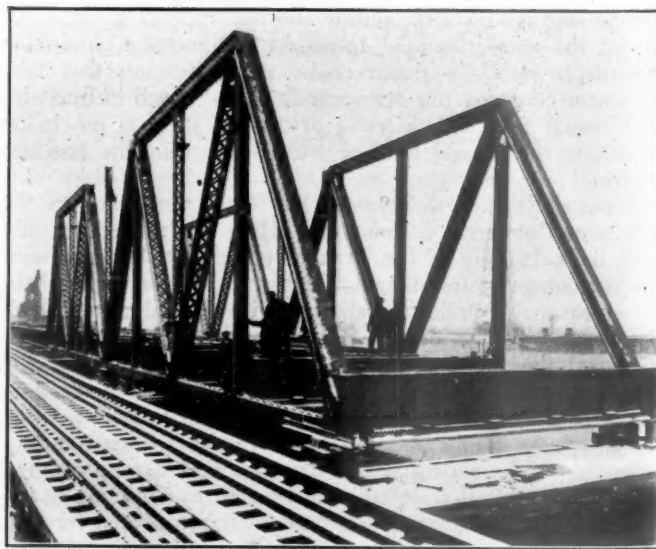
"(15) In determining the fair value of the property of the carrier held for and used by it in the service of transportation in interstate or foreign commerce the commission shall not fix a value in excess of the fair market value of the outstanding stocks, bonds, and other securities issued by the carrier; and the commission shall not include any increase in value of real estate which occurred while such real estate was held by the carrier and which was unearned by the carrier.

"(16) In prescribing just and reasonable rates, fares, charges and classifications, regulations, and practices relating thereto, which will allow a fair and adequate return upon such part of the property of the carrier held for and used by it in the service of transportation in interstate or foreign commerce, as is equal to the face

value of the outstanding bonds and other securities issued by the carrier (or if not issued at face value, then the value at which issued), the commission shall prescribe rates, fares, charges and classifications, regulations, and practices relating thereto, which will during any period produce upon such part of the carrier's property, a return that is not in excess of the total amount of interest accruing during such period upon such bonds and other securities; except that in case such bonds or other securities are issued at a discount or premium, such discount or premium shall be prorated over the life of the bond or other security, and the return to be so produced during any period shall not exceed the amount of such interest, plus or minus, respectively, the pro rata amount of such discount or premium for such period."

It does not appear that any predictions have been made as to how long the reductions in rates would remain in effect, if such a bill were ever passed and the results in the course of time came before the courts for review. Possibly the Senator has not even counted on its getting by even the Sixty-Eighth Congress but considers that it will have served its purpose by the time of the next senatorial election in Iowa. However, to show that he does not propose to make all rate reductions at the expense of the net income, which after all is limited, he says that later he will introduce another bill to "stop excessive profiteering by subsidiary corporations." The preparation of such a bill may require some care inasmuch as it will probably be necessary to entrust its actual administration to a commission which has so bungled its work in the past as to place a valuation of nineteen billion on property that Brookhart says is worth only twelve.

The present bill was introduced after the Senator had had a hard week of filibustering against the ship subsidy bill but he had even made that serve a double purpose. Being called upon to help the Democrats waste enough of the brief remaining time of the session to prevent a vote on the ship bill, Senator Brookhart made use of the opportunity to reply to the recent statement issued by S. M. Felton as chairman of the western committee on public relations and to read a list of salaries of railroad officers. Part of his filibuster speech shows that he has even thought out a way to meet the deficits that might arise if the government were to take over the railroads, for he said: "The farmer is beginning to see that if the railroads had a deficit under government operation he could pay that deficit by levying an excess-profits tax upon the excess profiteers, and he could collect that tax by making it 100 per cent on the upper brackets, so that it could not be added in and passed on to the consumer in the end."



Erecting the New P. & R. Drawbridge at Atlantic City, N. J.



# Creosote Shortage Threatens Wood Preservation

## Mixing Crude Oil With Creosote Will Increase Supply and Provide Necessary Protection

By C. M. Taylor

Superintendent Timber Preservation, Philadelphia & Reading and  
Central Railroad of New Jersey, Port Reading, N. J.

THE INCREASING COST of creosote oil presents a problem to those engaged in wood preserving which would be serious enough if expense alone were involved; but the graver question of a shortage presents an issue that should be faced fairly, and promptly, if the eighty million ties that should be treated chemically every year are to be preserved.

Examples of ties treated successfully with oils of unknown origin or composition mark the early days of wood

cused on the score of the chemical complexity of pure creosote and its economic status.

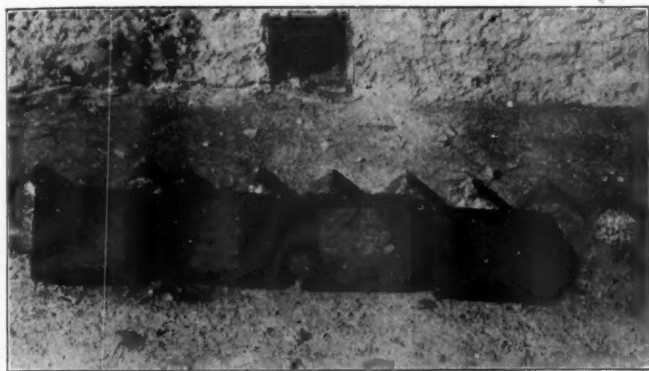
Through the technical supervision of their treating operations railroads have discovered that oils delivered as pure coal tar creosote contained water gas tar or water gas creosote.

Despite clamor against water gas tar by certain creosote oil interests and their allies, who were asserting how inferior it was for wood preserving purposes and how its presence must be guarded against at any cost in the purchase of creosote oil, large amounts of water gas tar were at the same time being mixed with creosote oils and sold under labels and prices which fully warranted the consumer in believing that pure creosote oil was being obtained.

To see so much water gas tar produced in this country as such and to know that it lost its identity and eventually came forth as coal tar creosote should create the impression that much assumed in the past about the sanctity of pure coal tar creosote has been based on faith rather than fact.

Condemning water gas tars on one hand and selling them in mixture with creosote oil on the other could not last forever, especially since some large railroads have been knowingly and openly using such mixtures with signal success for years.

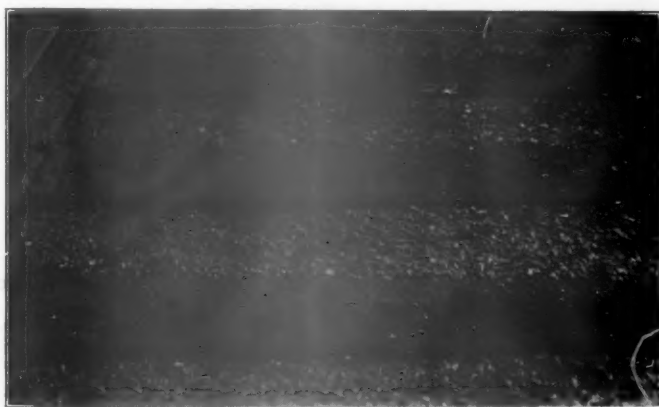
Fortunately there are ties treated with pure water gas tar creosote oil which are in just as good condition, from the standpoint of preservation, as when they were installed, which controverts the idea so actively put forth that the only way to get results is to use pure creosote oil, because it was toxic, had tar acids in it, and, to be further sure, it had



Typical Penetration of Mixture-Treated Perforated Douglas Fir Ties

preservation. For instance, some ties were treated for the Central Railroad of New Jersey in the 70's with a preservative which was called "Still Bottoms" which was apparently of petroleum origin. They were in track for over 25 years and contained preservative enough to prevent decay indefinitely if the mechanically destructive agencies responsible for their removal had been properly controlled.

That this and other examples of ties treated with oils other than creosote have not been duplicated generally is because the chemical and toxic properties of such other oils have long been undetermined, and because so long as dead oil of coal tar, called creosote, continued available, cheap, and satisfactory it was used freely and the question of substitute oils was not considered. Furthermore, the "safety-first" idea of pure creosote oil was carried to a "pure-food-law" extent, until engineers generally have been educated to the belief that nothing but pure creosote oil should be used as a preservative for ties. The psychology of the situation lies in the fact that to date all attempts at specifications have been to fit the creosote oil produced, rather than to fix the manufacture of an oil for the use intended. Consequently a pure product has been specified on the supposition that only with such a one could there be safety and satisfaction in its use. However, no positive chemical or physical analysis has been developed to date which will prevent circumvention of the standard specifications if a manufacturer desires to deceive, and therefore oils not distilled from pure coal tar have been palmed off as pure creosote, creating in the industry a situation, too long tolerated by some and fostered by others, which has been ex-



New Mexico Pine Ties Treated with 30 Per Cent Creosote and 70 Per Cent Crude Oil and Put in Track in 1910

some high boiling compounds which were not only permanent but apparently toxic also.

The old idea that tar acids must be present in oils is having to be revised, and failure to take cognizance of the lack of necessity for it is to hide our heads in the sand. According to Bulletin 1036 of the U. S. Forest Products Laboratory, high temperature oil tars (of which water gas

tar is practically the sole example) are "characterized by the almost entire absence of tar acids and tar basis."

The satisfactory results from the use of pure water gas tar creosote for several years by the Public Service Railway of New Jersey should be evidence enough that water gas tar, far from being a detriment in the preservation of wood, has a rightful place as a wood preservative. Notwithstanding the steadily accumulating evidence as to the wood preserving value of water gas tar creosote, railroads are being advised to avoid its use. The maintenance of this position is worthy of note in view of the common knowledge that large quantities of material mixed with coal tar creosote were used in the past with excellent results. Some railroads have used water gas tar in mix with zinc chloride in the Card process, with results which vary from excellent to not so gratifying. No water gas tar oil meeting the A. R. E. A. specifications for the Card process has been reported as having proved unsatisfactory.

Due to the competition for their use in conjunction with or as road oils, water gas tars and water gas creosotes have risen in price, so that it is now impossible to buy them at prices much under those for coal tar products except when at certain times in the winter the limited storage facilities at most water gas tar plants force these tars on the market and they may be obtained at figures slightly lower than those for coal tars.

Since enough water gas tars or oils to be diluted with or substituted for creosote oils cannot be had, other diluents, which some authorities consider better fitted than either coal gas or water gas tars, come into consideration. These are certain grades of petroleum oils.

In 1910 a paper before the American Wood-Preservers' Association gave the practice of one large railroad. Since that time another trans-continental road has used a mixture of crude petroleum and creosote and coal tar, a heavy combination but a usable one when the penetration is restricted as in Jack Pine, Mountain Douglas Fir, and such species having thin sapwood. To some the mixing of creosote oil with petroleum oil appears like opposing the trend of developments, which have seemed to tend toward more detailed attempts to get a pure coal tar creosote. But is it really in opposition to actual developments?

Creosote oils obtained from coal tar produced at recently established coke-ovens do not generally meet the present requirements of the American Railway Engineering Association. The present specifications applied to some oils imported into this country some 15 or 20 years ago would not permit their classification today as pure creosote oils. Furthermore the tendency is to produce lower temperature tars and these tars, whether originating in coke ovens or from recent developments in an attempt towards more economical gas production, will certainly make available large quantities of tars, which will not produce creosote according to our present recommended practice. These changing conditions in the production of pure coal tars alone will require intelligent revision of our standards if we should continue to demand pure coal tar creosote for preservation of cross-ties. Some of the low temperature coal tars run high in phenoloids and have considerable quantities of paraffin hydrocarbons.

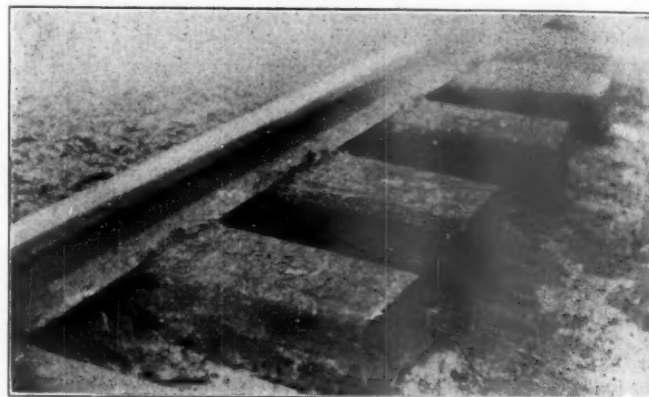
To continue to treat cross-ties with pure coal tar creosote oils seem to be a waste, and the use of cheaper mixtures with certain petroleum oils has given results which justify its adoption by railroads. There seems good reason for believing that a 50-50 mixture of creosote oil and petroleum oils of the proper character can be relied on to prevent decay in any tie that is sound when accepted, properly seasoned for treatment, and thoroughly and evenly penetrated throughout its penetrable portions with an average of six pounds of the mixture per cubic foot.

Although cheapness alone would be sufficient warrant for the adoption of the creosote crude oil mixtures, there is a

further great benefit to be gained by their use, and that is their wonderful fiber binding quality, as seen in a recent survey of the situation during which thousands of ties were examined. The usual brooming of the fiber seen in ties treated with zinc chloride varies with the different kinds of wood, but almost all zinc chloride treated ties have a dried out appearance, and in time the annual rings separate and the fibers of each ring come apart. This results in reducing the mechanical life of the tie and also increases the leaching of the preservative. The Card process did much to counteract this leaching and also worked wonders in fiber binding compared with the Burnett process.

Creosote oil used alone has proved a still better fiber binder and its superiority despite its greater cost is generally acknowledged; however it has been used in excess of any requirements for the prevention of fungus growth. Its fiber binding qualities vary with different creosote oils, depending on their origin and pitch content. If the pitch residue eventually becomes so hard as to be brittle, very little good is had of it. These properties have been generally lost sight of or not sufficiently appreciated because the end desired was not always understood and consequently not aspired to.

Yet mixtures of creosote oil and certain grades of petroleum oil seem to give better results in fiber binding than



Long Leaf Pine Ties Treated with a Mixture of One Third Creosote and Two Thirds Mexican Crude Ebano Oil and Placed in Track in 1913. Note Excellent Coating on All of the Ties

any of the pure creosote oils. Thousands of mixture treated ties in track with creosote oil treated ties show how much better preserved mechanically the mixture treated ties are, and provide sufficient evidence that the use of certain grades of petroleum oils mixed with creosote oil is not only a cheaper but a better proposition. Furthermore the protection against wood-destroying fungi by the creosote crude oil mixtures seems to be just as efficient as when straight creosote oil is used.

However, even if coal tar creosote oil is considered necessary as a basis for mixtures with petroleum oils, there is adequate assurance of safety if there is toxicity equivalent to one-fifth of a pound of creosote oil per cubic foot, the work of the Forest Products Laboratory proving this a minimum which would inhibit the growth of *Fomes annosus*, a virulent type of wood-destroying fungi. Dean and Downes have developed supporting data along these same lines.

Millions of ties have been treated in this country with an average of five pounds of creosote oil per cubic foot, and a reasonable evaporation factor of 50 per cent at the end of ten years would leave only 2½ pounds per cubic foot, which means that any wood which has been thoroughly impregnated with creosote oil, no matter how great the evaporation, no matter how little oil was required to impregnate the wood thoroughly, such treated wood has proved satisfactory.



From the above it begins to look as if ties have been over-treated from a toxicity standpoint. Three pounds of creosote properly distributed has saved thousands of ties from decay and anything in excess of three pounds of creosote per cubic foot is first a factor of safety and second a fiber binder.

Much confirming data of the successful preservation of ties with the use of such small quantities of preservative oil thoroughly permeating the treatable portions of the ties can be had from individual tie weighings in connection with the installation of test sections on various railroads.

Past and present objections to so-called blast furnace oils, which run rather high in tar acids are sometimes based on failures supposed to be due to the use of blast furnace oils. These oils were used successfully in timber treatment for years, but owing to trade antagonisms have not been used so largely of late. There is no reason why, if toxicity is required in wood preserving oils and if the price is right, coal tars, water gas tars or petroleum oils cannot be combined with blast furnace oils in efficient and economical mixtures containing sufficient toxic properties, etc., to meet the general average requirements and at the same time be relatively permanent.

Merely mixing any creosote oil with any petroleum oil is not the proper procedure, however. Some creosote oils mix easily with some petroleum oils and the mixture can be used readily and held in proper equilibrium by air agitation in the working tanks. Certain oils, however, are prone to precipitate a residuum when mixed with creosote oils, and crude oils having this tendency to a serious extent should be avoided. What is needed is an oil containing sufficient residue of such consistency that it will continue plastic enough throughout the life of the tie to act both as a fiber

binder and as a moisture barrier, in addition to its preservative quality.

It will be remembered that the report of the Committee on Preservation of Timber, presented and accepted at the annual convention of the American Society of Civil Engineers in 1885, mentioned that even paraffin base oils saturating ties already in track extended the life of inferior woods several years. Also, in the recent developments of oil spraying of rail and track fastenings, much beneficial effect is noted where the oils spray the surface of the ties.

The problem of knowing when a safe and workable mixture oil is had will be a matter for chemical determination. The fact that such oils have been used successfully for years should be sufficient evidence that when properly performed the work of mixing and injecting them can be handled satisfactorily. The problems of temperatures and pressures to be used have to be studied as was the case when the industry began to absorb creosote oil mixed with coal tars and water gas tars.

When creosote oil is not available, the toxicity lacking in some crude oils can be supplied by mixing the latter with zinc chloride, calcium chromate, sodium fluoride or some other toxic medium. Water gas tar creosote and certain grades of low temperature tars can be mixed with crude oils and used with assurance of successfully preserving ties.

Accompanying this discussion are photographs showing examples of the use of creosote with various mixtures of various kinds of crude oils. So far there is no known example of a failure from decay of a creosote crude oil mixture treated tie. The above leads to the conclusion that railroads need not depend entirely upon creosote oil alone for their tie preservation. Any of the mixtures mentioned could be made available promptly at a reasonable cost.

## An Analysis of 1922 Railroad Operating Results\*

### Present Situation Does Not Warrant Pessimism Nor Any Radical Reduction in Charges

By M. O. Lorenz

Director Bureau of Statistics, I. C. C.

**D**URING the past three years, 1920, 1921, and 1922, the financial condition of the steam roads in the United States has materially improved. In 1920, the revenues scarcely covered expenses and taxes. In 1921, in spite of a 25 per cent drop in business done, as compared with that of 1920, the net railway operating income, which is the sum remaining out of revenues after operating expenses, taxes, and certain rentals have been met and which is available for interest, rents for lease of road, dividends, and surplus, rose to 616 millions of dollars. This result was accomplished by a drastic cut in expenses, the number of persons on the payroll being reduced in 1921 about 18 per cent below the employment in 1920. In 1922, the net railway operating income, in spite of a reduction of 10 per cent in freight rates, effective July 1, 1922, was increased to 777 millions. The revival of business more than overcame the handicaps of the strikes of the miners and shopmen in 1922. When it is considered that the interest, rents, and similar deductions, commonly known as fixed charges, of these roads are around 669 millions, it will be seen that, regardless of any disputes about valuations, the roads did not earn enough in 1922 even

if account be taken of the non-operating income, which before federal control averaged about 200 millions for the Class I operating steam roads. (The corresponding non-operating figure for recent years is not comparable on account of federal control and guaranty period accounting complications.) A substantial margin above fixed charges is obviously necessary in any business.

The marked increase in traffic in the closing months of 1922 and the probability that, as the effects of the two strikes recede, the roads will have their operating expenses under still better control, make it probable that the net railway operating income will in 1923 approach more nearly to what the commission has indicated to be a fair return, namely, a return of 5¾ per cent on a valuation of \$18,900,000,000 as of December 31, 1919, plus subsequent net additions to property. If this valuation is tentatively assumed to be 19.4 billions for the mileage used by Class I roads, the return of 5¾ per cent would be 1,116 millions of dollars annually. On the whole, the present railroad situation, from the standpoint of railroad finance, clearly does not, on the one hand, warrant pessimism, nor, on the other hand, at present, any radical reduction in total charges to the public. From the standpoint of the public, which is interested in adequacy of

\* Statement given to the press by the Interstate Commerce Commission on February 23, 1923.

the service and in the fairness of the charges, two facts stand out prominently: (1) An enormous traffic has recently been handled in spite of the strike handicaps, and (2) the average revenue per ton per mile is pretty well in line with the general level of wholesale prices and there is no reason to believe that the general level of rates is retarding the business revival, whatever may be the adjustments which investigation may show to be desirable in the relationships between commodities or communities.

The result of operation for the calendar years 1922, 1921, and 1920, are shown in the following table:

CLASS I, STEAM ROADS				
Account	1922	1921	1920	
	(millions of dollars)			
Freight revenue.....	4,007	3,928	4,324	
Passenger revenue.....	1,076	1,154	1,287	
Railway operating revenues.....	5,617	5,573	6,225	
Maintenance expenses.....	1,995	2,021	2,624	
Transportation expenses.....	2,175	2,288	2,902	
All operating expenses.....	4,456	4,604	5,830	
Taxes.....	305	280	281	
Net railway operating income (1).....	777	616	58	
Ratio of operating expenses to operating revenues—per cent.....	79.32	82.61	93.65	

(1) Represents the result of deducting from railway operating revenues the following items: Railway operating expenses, railway tax accruals, uncollectible railway revenues, and net equipment and joint facility rents.

It is of interest to compare the returns for 1922 with those for a prosperous pre-war year. It will be noted that the increase in the payroll is relatively not as large as that for total operating expenses. The extensive repair of equipment in private shops during 1922 should be considered in this connection, as such expenditures increase total operating expenses without increasing the railroad payroll.

CLASS I, STEAM ROADS			
Account	Calendar year		Per cent of increase
	1922	1916	
	(millions of dollars)		
Freight revenue .....	4,007	2,575	55.6
Passenger revenue .....	1,076	707	52.2
Railway operating revenues.....	5,617	3,625	55.0
Maintenance expenses .....	1,995	1,023	95.0
Transportation expenses .....	2,175	1,186	83.4
All operating expenses.....	4,456	2,376	87.5
Taxes .....	305	159	91.8
Net railway operating income.....	777	1,069	†27.3
Ratio of expenses to revenues—per cent....	79.32	65.55	13.77
Payroll—millions of dollars.....	2,669*	1,508	77.0
Ton-miles of freight—millions.....	340,000*	362,444	†6.2
Passenger-miles—millions .....	35,600*	34,586	2.9

\*Based on eleven months' returns, with an allowance for December.  
†Decrease.

The figures for the entire year do not reveal the recent marked revival of traffic. The carloadings as reported to the Car Service Division of the American Railway Association show this tendency:

TOTAL CARLOADINGS				
Month	1923	1922	1921	1920
October.....	3,969,878	3,726,405	4,020,265	
November.....	3,873,325	3,057,181	3,536,040	
December.....	4,198,920	3,404,425	3,773,602	
January.....	3,380,296	2,785,119	2,823,759	3,279,004

The passenger traffic, beginning with October, has also been showing a response to the better business conditions:

PASSENGER REVENUE		
Month	1922	1921
September.....	\$97,504,148	\$100,599,536
October.....	90,133,399	88,903,056
November.....	84,789,547	82,638,361
December.....	98,464,190	88,722,702

### Financial Results for Individual Systems

The showing of results of operations for the railways as a whole ignores the uneven distribution of this income among the various systems. The following is a list of all the large systems having annual operating revenues above \$25,000,000. The roads are divided into groups, those earning more and those earning less than their so-called "standard return," that is, the income on which the government rental during federal control was based:

### \$25,000,000 ROADS—CALENDAR YEAR 1922

#### I. ROADS EARNING MORE THAN THEIR STANDARD RETURN

Name of road	Net railway operating income, 1922	Standard return
Michigan Central.....	\$18,066,109	\$8,126,349
New York, Chic. & St. L. (Incl. L. E. & W.).....	6,601,148	4,013,511
Pere Marquette.....	6,080,575	3,725,718
Cleveland, Cincinnati, Chicago & St. Louis.....	13,747,229	9,938,597
Elgin, Joliet & Eastern.....	5,152,091	2,672,806
Long Island.....	4,967,454	2,921,321
Chesapeake & Ohio.....	14,410,330	13,630,044
Atlantic Coast Line.....	14,416,370	10,273,543
Central of Georgia.....	4,375,578	3,408,809
Illinois Central (Incl. Yazoo & Miss. Val.).....	26,752,737	20,172,939
Louisville & Nashville.....	17,637,714	17,296,322
Southern Railway.....	20,472,778	18,653,893
Southern Pacific (Pac. Sys. incl. S. S. lines).....	40,459,532	37,554,097
Union Pacific (not incl. OSL and OWR&N Co.).....	26,621,319	23,670,741
Gulf, Colorado & Santa Fe.....	4,192,458	2,959,904
Missouri, Kansas & Texas (and MK&T of T).....	10,484,558	6,528,202
Frisco.....	15,490,000	13,897,260

#### II. ROADS EARNING LESS THAN THEIR STANDARD RETURN

Boston & Maine.....	6,475,740	9,421,461
New York, New Haven & Hartford.....	12,074,160	17,173,367
Delaware & Hudson.....	1,216,669	6,983,661
Delaware, Lackawanna & Western.....	6,669,022	16,057,942
Erie (including Chicago & Erie).....	644,910	15,729,068
Lehigh Valley.....	590,084	11,318,714
New York Central.....	53,716,459	59,283,775
Pittsburgh & Lake Erie.....	5,279,742	8,980,219
Wabash.....	4,107,421	5,826,810
Baltimore & Ohio.....	23,735,006	25,890,514
Central of New Jersey.....	3,375,154	9,405,979
Chicago and Eastern Illinois.....	2,721,469	2,946,001
Pennsylvania Railroad.....	73,555,149	80,920,346
Philadelphia & Reading.....	14,328,714	15,793,961
Norfolk & Western.....	18,624,468	20,509,725
Seaboard Air Line.....	4,230,570	6,497,025
Chicago & North Western.....	17,036,305	23,165,985
Chicago, Milwaukee & St. Paul.....	13,284,245	27,997,512
Chicago, St. Paul, Minneapolis & Omaha.....	3,812,671	4,931,623
Great Northern.....	17,276,598	28,666,681
Minneapolis, St. Paul & S. S. Marie.....	7,178,971	10,578,977
Northern Pacific.....	19,450,513	30,190,330
Oregon-Washington R. R. & Nav. Co.....	1,376,275	4,491,883
Atchafalpa, Topeka & Santa Fe.....	35,509,010	39,777,492
Chicago & Alton.....	1,532,189	3,178,315
Chicago, Burlington & Quincy.....	25,152,173	33,841,542
Chicago, Rock Island & Pacific.....	13,934,471	14,912,379
Denver & Rio Grande Western.....	5,558,452	8,054,260
Oregon Short Line.....	6,825,884	10,204,619
Galveston, Harrisburg & San Antonio.....	1,994,775	3,235,226
Missouri Pacific.....	8,247,035	13,978,029
Texas & Pacific.....	3,629,472	3,723,435

It will be noted that the second list, that is, of those that did not earn their standard return, is much the longer, although it contains some roads that earned a large proportion of their standard return. To pay attention to those in the first list only and from that to conclude that the roads are in the full tide of prosperity would only lead to deception. It is true, however, that a similar comparison for the month of December alone would throw more roads into the first group. To put the matter in another way, for the year 1922 these \$25,000,000 roads earned 660 millions as against a standard return of 773 millions, while in December, 1922, the earning was 69.9 millions as against a December standard return (on seasonal basis) of 66.7. December, it may be noted, is a month of adjustments, and may not be fully representative of present tendencies, and it may further be observed that the railroad plant has grown somewhat so that the "standard return" would be a more modest rental today than it was for the so-called "test period," the three years ended June 30, 1917.

THE LENGTH OF TRAINS is the subject of two bills which have been introduced in the lower House of the Illinois legislature at Springfield. The first makes it unlawful to run a freight train exceeding one-half mile in length; penalty, a fine of \$100 to \$500 for each offense. The second measure makes it unlawful to operate any freight train of less than 50 cars without a crew of not less than five persons; on trains having 50 or more cars, there must be an additional brakeman for every 25 cars. The bill also makes it unlawful to operate any passenger, mail or express train without a crew of not less than five persons, namely: one engineer, one fireman, one conductor, one brakeman and one flagman; and when baggage is carried, there must be a baggage man in addition to such crew. Similar bills have been introduced in the legislatures of other states.



# Five Presidents Defend Esch-Cummins Act

## Proposed Joint Resolution in State Senate Denounced as "Propaganda of Misrepresentation"

A STATEMENT by five presidents of railway companies operating lines in Wisconsin was presented to the Committee on Corporations of the Wisconsin state senate on February 28 denouncing the "extensive propaganda of misrepresentation" which, it was charged, is being carried on against the Transportation Act and the operation of the railways under it, and vigorously defending this law and the management of the railways since it was adopted. The statement of the railway presidents was called forth by the introduction in the senate of a proposed joint resolution demanding that Congress repeal the Esch-Cummins Act.

"The charges made against the Transportation Act in this proposed resolution," says the statement presented on behalf of the railway presidents, "are the same charges that have been made against it for many months throughout the country, and the proposed resolution is obviously a part of the propaganda against it. This propaganda has been plainly intended to mislead public opinion regarding the Transportation Act, and to bring about its repeal and the passage of legislation in its place which would be ruinous to the railways, which would inflict enormous losses upon the public, and which would make successful management of the railways under private operation impossible."

The statement then answers these charges categorically.

Among its charges, the proposed resolution asserts that "in and by said (Esch-Cummins) act the costs of transportation have been excessively increased with no corresponding benefits in economies of operation"; that in consequence, rates have had to be advanced; and that "under these excessive rates farmers, stock raisers, fruit growers and others engaged in like pursuits in large territories are deprived of access to their accustomed markets for their products, and find themselves unable longer to obtain for their products a price which covers the cost of production including the excessive transportation charges."

The presidents' statement sets forth in reply that since the railways were returned to private operation under the Transportation Act three years ago the expenses of operation have been largely reduced, and that, considering both the rates charged the public under government operation and the taxes that had to be levied under government operation to pay the deficit incurred, the public is now actually paying less for its railroad transportation than it was when government operation was terminated.

"It is true that the operating expenses and the rates of the railways have been much higher within recent years than formerly," the statement says, "but most of the increases in expenses which made necessary the advances in rates occurred under government operation of the railways before the Transportation Act was passed. Operating expenses are now actually less than they were before it was enacted. The incontrovertible facts are as follows:

"Government operation of the railways was adopted at the end of the year 1917. In December, 1917, the operating expenses of the railways were \$8,106,521 a day, and in September, 1920, the first month the last advance in rates was in effect, they were \$17,049,431 a day, an increase of \$8,942,910 a day. Of this increase in operating expenses, \$6,203,929 a day, or 70 per cent, had occurred before government operation was terminated on February 29, 1920, or the Transportation Act had gone into effect. In the first six months of private operation—before the last general advance in rates was made—there was a further increase in

operating expenses of \$2,739,000 a day. Three-fourths of this part of the increase in expenses, or \$2,100,000 a day, was due to an advance in wages which the Railroad Labor Board made effective on May 1, 1920, and over \$400,000 a day of it was due to an increase in the price of coal.

"This accounts for 97½ per cent of the increase in operating expenses which occurred between the time the government began operating the railways and September, 1920, when the last advance in rates was first in effect. At the time the last advance in rates went into effect the operating expenses of the railways were 110 per cent higher and their taxes were \$270,140 a day more, or almost 54 per cent higher than they were when government operation was begun. The advance in rates in 1920 made their freight rates only 78 per cent higher and their passenger rates only 50 per cent higher than they were before the war. No part whatever of this increase in expenses or taxes can possibly be attributed to the Transportation Act, unless it was the advance in wages on May 1, 1920, which amounted to less than one-fourth of the total increase in expenses that made the advance in rates necessary.

### Revenues and Expenses Under the Transportation Act

"Let us see what has occurred since then under the operation of the Transportation Act. The taxes of the railways have been increased from \$554,676 a day to \$835,202 a day, or 50.6 per cent. This large increase in taxes seriously increases the difficulty of reducing rates. But it is entirely chargeable to the action of government taxing authorities, and not at all to the Transportation Act.

"With regard to operating expenses—they were \$14,310,450 a day in February, 1920, the last month of government operation, and only \$13,061,231 a day in December, 1922. Thus, in less than three years of private operation of railways expenses were actually reduced \$1,249,000 a day, although the railways handled more freight business, paid higher average wages to their employees and higher prices for fuel in December, 1922, than in February, 1920. Computed on an annual basis, the reduction of operating expenses that has thus far been made since the railways were returned to private operation would amount to \$456,000,000 a year.

"The public already is receiving the benefit of this reduction of operating expenses. In the year 1922 freight rates were reduced an average of 13 per cent. On the basis of the freight business now being handled this means a total saving to the shipping public of approximately \$635,000,000 a year.

"When the railways were returned to private operation the public was not only paying freight and passenger rates for its transportation, but in addition was paying taxes to defray a large deficit that was being incurred. In February, 1920, the last month of government operation, the public paid in rates \$14,650,000 a day for transportation, and in addition, \$2,074,000 a day in taxes to defray the deficit incurred—a total of \$16,724,000 a day. In December, 1922, there was no deficit for the public to pay, and the total amount it paid in rates for transportation was \$16,567,000 a day. This was a total reduction in what the public paid for transportation since the termination of government control of \$157,000 a day, in spite of the fact that in December, 1922, the railways handled a largely increased business, paid a higher average wage to their employees and a higher average price per ton for coal, and paid largely increased taxes.

"In other words, although rates are somewhat higher now

than at the termination of government control, not only is the public paying less for its railroad transportation than at any time since the Transportation Act was passed, but it is also paying less for it than it was before the railways were returned to private operation.

"While the last advance in rates—which was rendered necessary mainly by the increase in operating expenses under government control—was made under the Transportation Act, these large reductions of operating expenses and of freight rates also have been made under the Transportation Act. How, in the face of such facts, can it be asserted, as it is in the proposed joint resolution, that 'by said act the costs of transportation have been excessively increased, with no corresponding benefits in economies of operation'?"

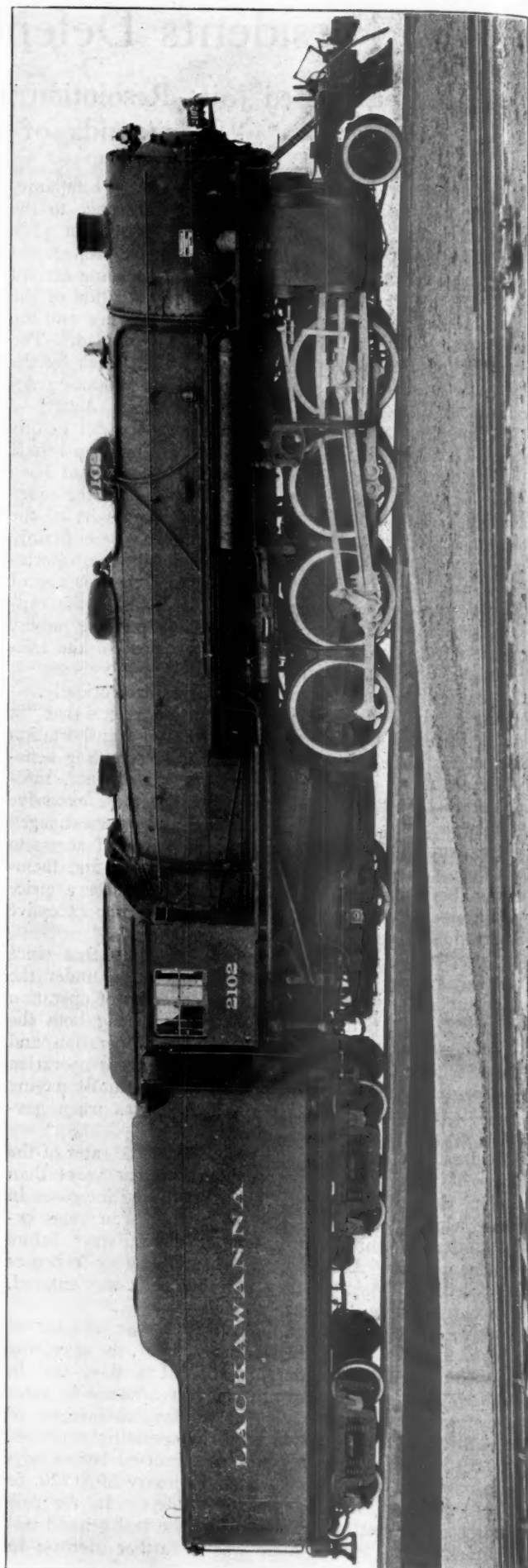
"It is true that for some time after the rates were advanced and the great decline of prices occurred in 1920 the farmers and stock raisers of the country suffered heavy losses. But these were not mainly due, as is charged, to freight rates. They were due to the fact that the prices of everything the farmers and stock raisers produced had declined much more than the prices they had to pay for all the things that they had to buy. In the year 1922, while the average railway freight rate was being reduced 13 per cent, the average price of farm products increased 20 per cent. In consequence, according to a recent report of the Department of Agriculture, the farm value of all farm products in 1922 was \$14,310,000,000, or almost two billion dollars more than in 1921. While railway rates were reduced during the last year, the prices of almost all commodities increased, and if today the farmer is in difficulties his troubles are due far less to freight rates than to other causes."

In conclusion, the statement said:

"The Transportation Act, if it is not repealed, will continue to confer benefits upon the public. If its provisions are carried out in the spirit in which it was enacted and the railways are allowed to earn the fair return for which it provides, it will result in further reductions of rates when additional economies in operation can be effected, and cause a renewal of the expansion of the railroads which in time will remedy the acute shortage of transportation from which the country recently has been suffering severely. On the other hand, legislation repealing its constructive provisions unquestionably would interfere with the further economies in operation that are necessary to make possible further reductions of rates, and prevent the expansion of railway facilities which is essential to remedying the present shortage of transportation."

The statement is signed by W. H. Finley, president of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha; H. E. Byram, president of the Chicago, Milwaukee & St. Paul; Hale Holden, president of the Chicago, Burlington & Quincy; Ralph Budd, president of the Great Northern, and C. H. Markham, president of the Illinois Central.

THE PERE MARQUETTE has announced a budget for 1923 of \$10,862,000, the second largest in the history of the company. The largest item is the purchase of 1,500 steel automobile cars, which will cost \$3,180,000, 500 steel hopper cars and 26 switch engines have also been purchased. The new engine terminal to be constructed at Detroit will cost \$1,200,000 and will include a brick roundhouse, water facilities, coach yard, turntable, etc. An expenditure of \$1,500,000 will be made for shop improvements at the Wyoming, Mich., and Grand Rapids yards. Second track work between Detroit and Plymouth, Mich., will involve a further expenditure of \$500,000, and a total of \$1,700,000 will be spent in reballasting and laying of new rails. The budget also includes the construction of two new stations, three ice houses and 12 water tanks and extension to passing and side tracks to cost \$350,000. The Flint Belt line, which was started about two years ago, will also be completed at a cost of \$200,000.



The Delaware, Lackawanna & Western Mikado Type Locomotives are the Most Powerful Ever Built



# Heavy Mikado Type Locomotives for D. L. & W.

## Purchases 40 of the Most Powerful Mikados Ever Built and Postpones Contemplated Electrification

ABOUT 40 PER CENT of the traffic of the Delaware, Lackawanna & Western consists of anthracite coal mined in the vicinity of Scranton. Normally about 900 to 1,000 cars of coal are handled per day, part of this going west in the direction of Buffalo and more than half east to New York. Scranton and the coal mines are located in a valley, and, while there are heavy grades—about  $1\frac{1}{2}$  per cent—in both directions, that toward the east over the Pocono mountains is considerably longer than the westbound grade. From Scranton east to Nay Aug, about 6 miles, the grade is 77 ft. to the mile and from Nay Aug to Gouldsboro, about 14 miles, the grade is 51 ft. to the mile. These grades out of Scranton present the most difficult operating situation on the line between New York and Buffalo.

An analysis of the operating and traffic conditions on the Lackawanna with information as to grades, road layout, track situation and motive power, in which the operating conditions at Scranton were described, was given in two articles which appeared in the *Railway Age*, November 26 and December 3, 1921.

In order to equalize the operating capacity of the road plans were drawn for the electrification of some 40 miles of gradients near Scranton, the intention being to furnish electric locomotive helper and pusher service, to the summits for east and west bound traffic. The first set of bids were rejected in the summer of 1921, and later new bids were called for. As the cost of this project was in excess of \$5,000,000 it was finally decided to postpone electrification for the time being and to purchase 40 powerful Mikado type locomotives at a very much smaller investment, these locomotives to be used for helper and pusher service as well as for regular road duty.

Coal trains are made up and taken through solid from Scranton to the west or to the seaboard, the necessary additional helper and pusher service being given out of Scranton. The new Mikado locomotives with the helper service mentioned are now hauling trains of 2,900 tons through from Scranton to Secaucus yards, near Hoboken.

With these powerful locomotives a larger tender is used, the capacity having been increased from 10,000 gal. of water and 12 tons of coal to 12,000 gal. of water and 14 tons of coal. This increased capacity enables the locomotives under ordinary conditions to take a train to the summit east of Scranton without taking water and to run 130 miles from Scranton to Secaucus yard without taking coal.

The 40 new locomotives are noticeably heavier than those already in service and in terms of tractive force are the most powerful Mikado locomotives ever constructed. They were designed by the American Locomotive Company to meet the special traffic conditions on the D. L. & W. and were built at the Schenectady works. They bear the road numbers of 2101 to 2140, inclusive. Their weight in working order is 356,500 lb. and their normal rated tractive force is 67,700 lb. Being equipped with boosters, having a rated tractive force of 11,500 lb., the total available tractive force for starting or heavy pulls is 79,200 lb., or 17 per cent over that of the locomotive cylinders alone. The locomotive cylinders are 28 in. by 32 in. and the driving wheels are 63 in. in diameter.

The D. L. & W. has been a user of heavy Mikado locomotives in the past, having purchased 74 locomotives of the 1200 class which are essentially alike. The last order from this design was for ten locomotives placed in 1920. These also were built by the American Locomotive Company. A

comparison of the dimensions, weights and proportion of the two designs will be found in the data table opposite the next page.

It will be noticed from this table that the new Mikado locomotives have 10,600 lb. greater tractive force than those previously used, an increase of  $18\frac{1}{2}$  per cent for the main cylinders, and an increase of 22,100 lb., or  $38\frac{1}{2}$  per cent, if the booster is included. The increase in tractive force of the main cylinders was obtained by changing the piston travel from 30 in. to 32 in. and raising the steam pressure from 180 lb. to 200 lb. The weight of the locomotive in working order was raised from 328,000 lb. to 356,500 lb., an increase of 8.7 per cent, and the weight on the drivers from 256,000 lb. to 271,500 lb., an increase of slightly over six per cent. An axle load of 68,000 lb. would of course not have been permissible except for the favorable track and bridge conditions prevailing on the Lackawanna. The fact that an increase of  $38\frac{1}{2}$  per cent in total available tractive force was obtained by an increase of only 8.7 per cent in the total weight of the locomotive is an excellent example of what can be done by good designing combined with the introduction of the booster.

The diameter of the boiler was increased from  $84\frac{1}{4}$  in. to  $90\frac{5}{16}$  in., inside the first ring, while the length of the firebox was increased  $12\frac{1}{8}$  in. without change in width, the grate area thereby being increased from 63.2 sq. ft. to 70.4 sq. ft. The length over the tube sheets of 18 ft. was retained but the number of 2 in. tubes was decreased from 303 to 300 and the number of 5-3.8 in. flues increased from 43 to 50. The total evaporative heating surface was increased 3.9 per cent while the superheating surface was increased 16.75 per cent. In the new locomotives the superheating surface is 25.2 per cent of the evaporative heating surface, a liberal allowance. Superheated steam is used not only for the main cylinders but also for the booster, the connection for the latter being made from the outside steam pipes. A combination exhaust stand is used for the locomotive and the booster cylinders.

A comparison between the calculated cylinder horsepower and the calculated boiler horsepower shows they are practically the same and would indicate that these locomotives could be relied upon to be excellent steamers. The estimated coal rate when working at full capacity is 130 lb. per square foot of grate per hour. Stokers are provided, those for the new engines being furnished by The Elvin Mechanical Stoker Company.

The driving wheels of both the old and the new designs are 63 in. in diameter. The main driving journals of the new locomotives are 12 in. by 20 in., the front journals  $10\frac{1}{2}$  in. by 18 in., and the others  $10\frac{1}{2}$  in. by 16 in. By using lateral motion driving boxes for the forward drivers the rigid wheelbase is reduced to 11 ft. 4 in. The front trucks are of the Woodward type and the trailing trucks of the Delta type. Baker valve gear with 14 in. piston valves are used on both designs. Chrome-Vanadium steel was used for the main and side rods in order to keep their weight as low as possible and thus minimize the dynamic augment.

The height of the new D. L. & W. Mikado locomotive is 15 ft.  $4\frac{1}{8}$  in., the extreme width 11 ft., and the coupled length of locomotive and tender 84 ft.  $5\frac{1}{2}$  in. The smoke stack is 18 in. in diameter and the single exhaust nozzle 7 in. in diameter.

In addition to the booster, Elvin mechanical stoker and





Baker valve gear other special equipment on these locomotives are the Alco power reverse gear, power grate shaker, automatic fire door of the Butterfly type, Pyle electric headlight and Cleveland low-water alarm.

While the curvature on the main line of the Lackawanna is moderate and while lateral motion driving boxes and a short rigid wheelbase have reduced hub wear and flange wear to a relatively small amount, Chicago hydrostatic flange lubricators are installed to still further reduce the flange wear and decrease the friction on curves.

Conditions on the Lackawanna call for considerable drifting of locomotives. For this reason Talmage drifting valves have been applied to the new Mikados so that it is not necessary to run with a cracked throttle.

To avoid breakage and damage of the pilot drawgear when locomotives are used in pusher and helper service Miner friction draft gear is employed on the head end of these locomotives.

These D. L. & W. Mikado locomotives will naturally be compared with those for the New York Central Lines, one of the most striking designs brought out in 1922; orders were placed for 191 for the various roads comprising that system. The New York Central locomotives weigh 334,000 lb. in working order, have 28 in. by 30 in. cylinders, and 63 in. driving wheels. They also are equipped with boosters and have a total rated tractive force of 74,500 lb. or 63,500 lb. without the booster. They were fully described in the *Railway Age*, September 2, 1922. Other heavy Mikado type locomotives recently ordered are those for the Central of New Jersey weighing 342,500 lb., having 27 in. by 32 in. cylinders and a rated tractive force of 59,000 lb. and those for the Northern Pacific weighing 337,000 lb., having 28 in. by 30 in. cylinders, and a rated tractive force of 57,000 lb. But few Mikado locomotives having a tractive force of over 60,000 lb. have been built.

#### DIMENSIONS, WEIGHTS AND PROPORTIONS

D. L. & W. MIKADO LOCOMOTIVES			1,200 CLASS		
Type of locomotive.....	2,100 CLASS	2-8-2	28 in. by 32 in.	28 in. by 30 in.	Baker
Cylinders, diameter and stroke.	28 in. by 32 in.	Baker	14 in.	14 in.	14 in.
Valves, piston type, size.....	14 in.				
Weights in working order:					
On drivers.....	271,500 lb.		256,000 lb.		
On front truck.....	25,500 lb.		23,500 lb.		
On trailing truck.....	59,500 lb.		48,500 lb.		
Total engine.....	356,500 lb.		328,000 lb.		
Tender.....	217,600 lb.		178,000 lb.		
Wheel bases:					
Driving.....	17 ft. 0 in.		17 ft. 0 in.		
Rigid.....	11 ft. 4 in.		11 ft. 4 in.		
Total engine.....	37 ft. 4 in.		35 ft. 2 in.		
Total engine and tender.....	73 ft. 2½ in.		70 ft. 9½ in.		
Driving wheels:					
Diameter outside tires.....	63 in.		63 in.		
Boiler:					
Type.....	Straight top		Conical Con.		
Steam pressure.....	200 lb.		180 lb.		
Fuel.....	Bituminous Coal		Bituminous Coal		
Diameter, first ring, inside.....	90½ in.		84½ in.		
Firebox, length and width.....	120½ in. by 84½ in.		108 in. by 84½ in.		
Tubes, number and diameter.....	300-2 in.		303-2 in.		
Flues, number and diameter.....	50-5½ in.		43-5½ in.		
Length over tube sheets.....	18 ft. 0 in.		18 ft. 0 in.		
Grate area.....	70.4 sq. ft.		63.2 sq. ft.		
Heating surfaces:					
Firebox, comb. chamber and arch tubes.....	345 sq. ft.		328 sq. ft.		
Tubes and flues.....	4,073 sq. ft.		3,923 sq. ft.		
Total evaporative.....	4,418 sq. ft.		4,251 sq. ft.		
Superheating.....	1,112 sq. ft.		953 sq. ft.		
Comb. evaporative and superheating.....	5,530 sq. ft.		5,204 sq. ft.		
Special equipment:					
Brick arch.....	Yes		Yes		
Superheater.....	Yes		Yes		
Feedwater heater.....	No		No		
Stoker.....	Elvin		Duplex		
Booster.....	Yes		No		
Tender:					
Water capacity.....	12,000 gal.		10,000 gal.		
Fuel capacity.....	14 tons		12 tons		
General data, estimated:					
Rated tractive force, 85 %..	67,700 lb.		57,100 lb.		
Rated tractive force with booster.....	79,200 lb.				
Cylinder horsepower (Cole).....	2,824		2,542		
Boiler horsepower (Cole).....					
(est.).....	2,805		2,645		

#### Weight proportions:

Weight on drivers÷total weight engine, per cent...	76.1	78.0
Weight on drivers÷tractive force.....	4.01	4.48
Total weight engine÷cylinder hp. ....	126 lb.	129 lb.
Boiler proportions:		
Boiler hp. ÷ cylinder hp., per cent.....	99.3	104
Comb. heat. surface ÷ cylinder hp. ....	1.96	2.05
Tractive force ÷ comb. heat. surface.....	12.23	10.97
Tractive force × diameter drivers ÷ comb. heat. surface.....	771	691
Cylinder hp. ÷ grate area..	40.1	40.2

## Consolidation No Panacea for Railroad Ills

THE plans of railroad consolidation that have been proposed to carry out the consolidation provisions of the Transportation Act of 1920 may benefit the country's transportation system in many ways, but of themselves cannot be expected to remove the difficulties that face the railroads, according to a report just issued by the National Industrial Conference Board, 10 East 39th Street, New York City. Other changes in government policy toward the railroads, such as a better co-ordination of rate and wage regulation, would have to be made, the Board says, before the railroads would be in a position to keep pace with the rapid growth of the commerce and industry of the country.

According to the board's report, the movement for railroad consolidation, which is recognized in the Transportation Act, is an outgrowth of the economic situation of the railroads following their return to private management after the war, and has persisted and increased with the development of the combination tendency in American industry generally. This movement had been seriously checked by government regulation under the anti-trust laws in the period from 1903 to 1914.

After the World War, however, Congress found it necessary to provide means for the railroads to earn a fair return upon their value. In each of the three rate-making districts of the country, under any uniform scale of rates sufficient to provide a fair return upon the aggregate value of all the roads, the strong lines would earn a high return upon their value, while the weaker roads would be unable to earn a return sufficient to attract the new capital necessary for expansion. To overcome this difficulty Congress decided to permit the railroads to consolidate, with the intention of having the weak roads combine with the strong roads in order to equalize earning power and at the same time maintain competition in service.

An analysis of the financial features of the consolidated systems proposed by the Interstate Commerce Commission, and by J. E. Oldham, made in the board's report, shows that if the railroads were consolidated into a limited number of systems, they would have to be approximately equal in size and strength to be successful. Not only would the small roads have to be joined with those with strong financial structure, but large roads in a weak position would have to be consolidated and their financial structure revised in order to make them equal in strength to their competitors.

A test of the earning power of the Interstate Commerce Commission's 19 proposed consolidated systems shows that, in a normal period, most of the systems would be able to approximate the fair return upon their value which is permitted them by the terms of the law. Three of the proposed systems, and particularly the two in the Southwestern-Gulf region, would be unable to earn more than a fraction of the fair return if consolidated in the manner proposed.

An analysis of the expenditures of, four of the most suc-

cessful railroads shows that about 40 per cent of the total amount available for return on investment in a normal period is expended for fixed charges. The same analysis applied to the proposed consolidated systems shows that, of the total amount available for return upon investment, the average proportion expended for fixed charges would be in excess of 60 per cent. For five of the proposed systems the proportion used for fixed charges would range from 81 per cent to 101 per cent of the total available for return upon investment. These results point to the necessity, in the event of consolidation, of a revision of the financial structure of the lines involved in these consolidations, so that their fixed charges could be reduced to permit the retention of sufficient funds to pay dividends on the stocks of the systems, and to build up a surplus.

The Transportation Act contains no mandate to the railroads to accept the recommendations of the Interstate Commerce Commission in regard to consolidation. As long as the level of rates fixed by the Interstate Commerce Commission is not high enough to allow the strong roads to earn a reasonable return upon investment, it is unlikely that they will voluntarily assume the additional burden of weaker roads. Thus, unless a reasonable level of rates were maintained, the consolidations would not be completely carried out.

In order to secure to the country the full benefits of consolidation, however, it would be necessary for all the weak roads, which are essential to the communities that they serve, to be consolidated with stronger roads. Should only a part of the consolidations be carried out, and some weak roads remain, the disparity between the weak and the strong roads would be increased. This would necessitate either the abandonment of the weak lines, their operation by the government, or radical changes in their management.

The consolidation of the railroads into a limited number of systems might have marked results upon railroad finance, if at the same time a constructive policy in regard to rates were conscientiously carried out. The market values of railroad securities might tend to some extent to be stabilized because they would rest upon an officially ascertained value.

Consolidation might also tend to improve the character of railroad service, as it would make possible the extension of the best operating practices to the weak roads when they were combined with the stronger lines. The retention of competition between the consolidated systems might also result in a more efficient service.

Certain operating economies might result from consolidation, such as the elimination of much of the present interline accounting, and many of the delays in interchange which would disappear with unified operation. Consolidation might also permit of better terminal operation. The economies which may be expected from consolidations, however, while important, would probably, in the face of other adverse conditions, never attain such proportions that they would enable any substantial reduction of freight rates to be made.

Finally, the board's report says, it is possible that railroad consolidation might have important consequences affecting industrial relations and stability of employment in the railroad industry.

The consolidation of the railroads, however, even though it should benefit the country in many ways, is not a panacea for all railroad ills. Indeed, many experienced railroad officials feel that it may have distinctly adverse effects on the transportation situation. If for any reason the provisions of the law which allow the railroads to earn a fair return upon their aggregate value fail to produce the results intended, the mere fact of the railroads having been consolidated into large systems will in no way prevent their starvation. Other changes would have to be made before the railroads would be in a position to expand to the extent which is necessary to keep pace with the rapid growth of the commerce and industry of the country. It is a question whether the regulation

of railroad income by one government agency, and the regulation of the most important single item of expense, wages, by another agency without co-ordination is conducive of railroad stability and prosperity. The union of the small companies with the large would do nothing to offset the inherent dangers of such a method of regulation.

## Permanent Head Boards Increase Privacy of Pullman Sections

THE FIRST STEP in the development of greater privacy for sleeping car passengers during the daytime, now being undertaken by the Pullman Company, is shown in the illustration. Some 60 standard Pullman sleeping cars are now in service equipped with permanent head boards which extend out from the side of the car for something more than half the width of the seat, so that the forward edges are flush with the top of the closed berths and the side walls of the upper deck. The permanent head board adds consid-



Sections of Standard Pullman Sleeping Cars Separated by Permanent Head Boards

erably to the privacy of the standard section during the daytime. It also permits the occupants of each section to freely control the ventilation without causing drafts which may be displeasing to the occupants of adjoining sections. At night the partition is completed by locking a removable half head board on the rigid partition. The berths are made up in the usual way.

The arrangement illustrated has been received with favor by travelers wherever the cars of this type have been in service and experiments looking toward the further development of the idea are now under way at the Pullman Works, Chicago.

AN INCREASE in wages for clerks on the Chicago, Burlington & Quincy has been made, effective on March 1. The increase averages from one to two cents an hour for the various grades.



# Railroads Must Use Labor Saving Equipment

## Reports Pointing to a General Shortage of Men Indicate Necessity for Utilizing Mechanical Appliances

**A**LL CONDITIONS POINT to a severe shortage of labor throughout the current year. With the possible exception of the building trades, the greatest shortage will probably be encountered in the field of common labor, the class on which the railroads must depend in recruiting a large part of their forces for maintenance of way and construction work. The situation is particularly serious because of the extensive improvement programs which the roads have prepared for the coming season.

Since it is clear that not enough men are to be had to meet all requirements, there is every incentive for the adaptation of every possible practice or appliance which will make for economy in the utilization of labor. This lends interest to the review of the current labor situation and the possibilities in using labor saving devices as presented in the March issue of *Railway Engineering and Maintenance*. This issue not only points to specific facts concerning the widespread shortage of labor throughout the country, but presents also a detailed report on the present state of development in labor saving equipment, including descriptions of new devices and new applications of old ones; also several studies by railway officers of the most favorable fields for further development in mechanical appliances, and detailed reports of the results which have been secured on several roads which have made more than ordinary efforts to utilize the appliances now available.

The following is a summary abstracted from this special issue of *Railway Engineering and Maintenance*.

### Labor Shortage Most Severe in the East

Following are excerpts from reports received from railway officers with respect to the labor supply. These reports come from such a wide area as to cover practically the entire country.

**Conditions in the East Already Bad.**—We were confronted with very bad storms during January, and found through our New York and Mohawk Valley territory, and, in fact, along our entire main line from New York to Buffalo, that it was practically impossible to secure sufficient track laborers or common laborers to meet our requirements for this special service. When the spring or seasonable work starts I am satisfied that there will be quite a labor shortage.—*J. V. Neubert, engineer maintenance of way, New York Central, New York City.*

**Shortage in Eastern Pennsylvania.**—There is no doubt, I think, but that there will be an acute shortage of labor this year and that we must make the greatest possible use of labor-saving devices. We still have a large percentage of native laborers on our lines, while the others are principally Italian.—*F. S. Stevens, engineer maintenance of way, Philadelphia & Reading, Reading, Pa.*

**In the Allegheny Mining Areas.**—The outlook for an adequate supply of labor to meet the seasonal increase in force, which we will make beginning about the first of April, does not appear to be very bright. This applies particularly in the industrial and mining centers, such as in West Virginia, the Connellsville, Pittsburgh, Youngstown and Akron regions and in the vicinity of Chicago. The present outlook is that the desirable foreign labor will be very scarce and probably only procurable in small numbers. If this proves to be the case we will have to rely largely on the hobo and as a last resort on Mexican labor.—*Earl Stinson, chief engineer maintenance, Baltimore & Ohio, Baltimore, Md.*

**Still Ample in West Virginia.**—When coal prices are high and labor is in demand, the coal mines attract the labor and it is difficult for other industries to secure the labor necessary at reasonable rates. At the present writing, during the first part of February, the labor supply is abundant. If coal prices continue to decline there will be no marked labor shortage.—*L. B. Allen, superintendent maintenance of way, Chesapeake & Ohio, Huntington, W. Va.*

**No Shortage in the Southeast.**—We are having no trouble securing the labor we require, both for track work and for work on

bridges and trestles. We have no large work in view other than regular maintenance which will require unusual forces for the coming season, and we do not anticipate any difficulty.—*J. B. Akers, chief engineer, maintenance of way and structures, Southern, Charlotte, N. C.*

**Shortage Around Pittsburgh.**—The railroads in the Pittsburgh district are probably facing the most serious shortage of common labor in their history. At the present time they are able to take care of their needs, but the situation in the steel industry shows clearly that as soon as they attempt to increase their forces to take care of their spring work they will be unable to do so.—*F. R. Layng, engineer of track, Bessemer & Lake Erie, Greenville, Pa.*

**Discouraging Outlook in Central States.**—During 1923 we anticipate no great difficulty in securing and holding a sufficient force for normal section maintenance, through the employment of local men. With regard to extraordinary work, it is safe, we think, to predict that there will be a relative shortage, quite possibly a very acute shortage, in the supply of men for such demands.—*C. A. Paquette, chief engineer, Cleveland, Cincinnati, Chicago & St. Louis, Cincinnati, Ohio.*

**Severe Shortage Expected in Central West.**—As I view it, the present indications are that the railway labor requirements for 1923 will be far greater than the available supply. It also looks as though there will be a greater labor shortage during the coming working season than there has been at any time since the war closed.—*C. A. Morse, chief engineer, Chicago, Rock Island & Pacific, Chicago.*

**Conditions Not Serious in the West.**—There is no labor shortage at present in Union Pacific territory, either on bridge work or track work. In our agricultural districts, where local labor is ordinarily employed on the track, there will be some shortage through the time of planting and harvesting crops. In our stock range territory, where we ordinarily are compelled to employ foreign labor on our track, there will evidently be a shortage about May 1, which will have to be filled by the movement of labor from population centers, or its importation from the outside.—*R. B. Robinson, engineer maintenance of way, Union Pacific, Omaha, Neb.*

**Competition With Agriculture in the Northwest.**—We do not anticipate a shortage in labor in Minnesota, Wisconsin and in eastern North and South Dakota, prior to the time of harvest, about July 15, but it is our expectation that the demand for labor on those portions of our line west of the states mentioned will exceed the supply, especially during the months of agricultural activity.—*J. R. W. Davis, engineer maintenance of way, Great Northern, St. Paul, Minn.*

**Expect Ample Supply in the Southwest.**—At present we are experiencing no labor shortage on any of our lines and present indications are that we will be able to recruit all of the common labor we will require for maintenance purposes, as we are not contemplating a large amount of improvement work requiring this class of labor on our lines during 1923.—*E. A. Hadley, chief engineer, Missouri Pacific, St. Louis, Mo.*

**No Difficulty Anticipated in Texas and Louisiana.**—There are at present no indications of any marked shortage during this year, except such local shortages during the harvesting seasons.—*H. M. Lull, chief engineer, Southern Pacific Lines, Houston, Tex.*

**Same Situation on the Mexican Border.**—The El Paso & Southwestern is having no difficulty in securing all of this labor that it needs and I believe this is true of other railways in this section. The outlook for the railway labor supply for the future is good.—*J. L. Campbell, chief engineer, El Paso & Southwestern, El Paso, Tex.*

**Shortage of Skilled Labor on Pacific Coast.**—There does not now appear to be a labor shortage, but I think that one will develop during the year. Owing to the great building activity on the Pacific coast, carpenters, helpers and allied mechanics are receiving high wages, particularly in California. As a result we expect a shortage of bridge and building labor, but do not anticipate that this condition will develop with reference to track labor.—*Maintenance Engineer.*

**Conditions Satisfactory in Canada.**—Our program for the coming season is not a very extensive one and we do not anticipate any trouble in obtaining the labor necessary to carry it out. For the most part our labor will be obtained locally, supplemented in some cases with extra gangs consisting of the usual mixture of foreign born labor, which, in our case, is mostly Italian and Scandi-

navian.—J. M. R. Fairbairn, chief engineer, Canadian Pacific, Montreal, Que.

### Need for Mechanical Equipment is Great

Track work involves many operations which, as now conducted, require the expenditure of an enormous amount of human energy—the most expensive form known. The renewal of ties involves a tedious operation, now performed entirely by hand, that is repeated 100,000,000 times each year on American roads. Track lining and surfacing, bolt tightening and many other operations require arduous labor. With respect to some of these, considerable progress has been made in the application of power equipment. On others, only a start has been made. The following suggestions are offered by an engineer of track maintenance:

**Machine or tool for skeletonizing track.** Doing this work with pick and shovel requires 900 to 1,100 man-hours per mile of track. A machine or tool is needed that will lift, drag, kick or in some other way move this material out from between the ties with a less expenditure of man-hours.

**Automatic device to take up looseness in track joints.** The time spent in keeping joints tight varies on different roads and on different parts of the same road. A device that will take up looseness in track joints automatically will effect an immediate saving in both man-hours and money for the roads where frequent tightening is now the practice and will effect a great ultimate saving for those where infrequent tightening is the practice.

**Track lining devices.** Several such devices now being tried indicate that through their use track may be lined with one-third the number of men required with ordinary lining bars. The development of these tools should be encouraged, as their success will mean a very material saving in man-hours.

**Tie renewal machine.** On a 10,000-mile railroad, two to three million man-hours are expended annually in renewing ties. Several machines are being developed for this work, but as is the case with most new devices, actual tests have revealed weaknesses and errors in design. Every effort should, of course, be made to perfect them.

**Ratchet wrenches.** Ratchet wrenches are used quite generally in bridge and building work, and there seems to be no good reason why a ratchet wrench, properly designed, should not be used to wrench track bolts.

**Motor cars.** For section gangs these have proven time and money savers. Motor cars with trailers for handling large extra gangs, both bridge and track, will show even greater savings.

**Pre-adding of track ties** will effect a saving in time and money that can only be appreciated by watching trackmen do this work by hand.

Various other operations on the track are also a source of great expense and require the expenditure of an enormous amount of labor.

**Creeping track.** The creeping of track has an effect on maintenance cost that is of a somewhat intangible character insofar as the actual economy to arise from the use of rail anchors, but a test on a stretch of double track 30 miles in length on which one track was equipped with anti-creepers and the other was not, throws considerable light on the economy of rail anchors. To correct the effect of creeping in respacing joint ties, driving back the rail, resurfacing and relining required 26,400 hours of labor on the track not equipped with anchors, whereas no such expense was incurred on the track adequately provided with them.

**Weed killing.** Weeds cause an enormous amount of trouble to the railroads in this country, particularly those in the warmer and more humid territories. Reports recently available illustrate the economies to be obtained in the removal of weeds by weed killing solutions sprayed on the track and also by burning the weeds with steam. Considerable progress has been made in the mowing of weeds and grass on either side of the track with cutters attached to a motor car. There is still room for progress in the development of equipment for cutting weeds at more remote distances from the track. Another new development is a ditcher or cutter which dresses the ballast and cuts the ballast line.

**Tamping ties.** There has been a growing application of the pneumatic tie tamper and sufficient progress has been made to demonstrate the economies to be obtained by the use of this mechanical equipment. The most recent development is an air compressor outfit capable of supplying compressed air to 12 tampers, thereby effecting a considerable reduction in the charge for supervision and mechanical attendance.

**Cleaning ballast.** Power shovels, ditchers and cranes. Probably the greatest saving in labor which has been effected thus far in the field of maintenance of way may be credited to the self-propelling cranes which have been developed for a wide variety of

special services but particularly as excavators and material handlers. The earlier models were designed for use on standard railway track or, in the case of ditchers, for use on top of flat cars. The more recent tendency has been the adaptation of the crawler tread which, at first thought, did not seem particularly applicable to railway service. However, the facility with which these machines may be operated independently of the track or run off the track so as to clear them for trains without the need of running to sidings has demonstrated their particular adaptability to certain uses on the railroads, notably in ditching.

**Spreaders and bank wideners.** This general class of equipment has long been accepted as a very effective means of saving a large amount of labor. More recent application of this equipment has been found in the forming of ditches and the sloping of embankments.

**Dump cars.** The dump car has long been a useful utility in railway maintenance and construction, the tendency being primarily to the use of the larger standard-gage cars constructed to standards permitting their use in regular trains. More recent designs are arranged to dump the load beyond the ballast line, to avoid fouling the ballast or interference with the use of the track immediately after the dumping operation is completed.

**Cleaning ballast.** Several forms of mechanical equipment have been developed for doing this work, including a machine involving the use of revolving screens and another embodying fixed screens set on gondola cars onto which the ballast is dropped with the aid of a locomotive crane and a clam shell bucket. The use of these devices under practical working conditions demonstrates the economies to be obtained.

**Rail laying.** Another field in which considerable progress has been made is in the mechanical handling of rail both in lifting out the old rail and in inserting the new. The great increase in the weight of rail in recent years makes the adoption of mechanical means highly important.

**Fencing.** The item of right-of-way fencing is generally considered one of the minor features of the regular maintenance budget; in fact it seems that few maintenance officers realize that a large saving of time, money and labor can easily be made by taking advantage of recent developments in fencing materials and methods. In this respect the experience of one of the New England railroads is of close interest. Comparative cost records of fencing with wooden posts and with steel posts that can be driven into the ground showed a saving of \$150 per mile notwithstanding a greater cost of the steel posts.

In bridge work also, the need for development is great, comprising primarily, a more extensive use of equipment already developed.

The following are a few suggestions offered by a bridge and building maintenance officer:

Where a large number of bridge ties are to be renewed, the tie dapper equipped with a circular saw will save considerable labor. An actual test with such equipment showed that three men dapped from 85 to 90 ties per day, which was about fifty per cent more than could be cut out by hand.

The ordinary winch supplied to most gangs is a very useful part of the equipment. There are several hand power pulling devices on the market which have some advantages over the winch. These devices are lighter and can be installed more readily in places inaccessible to the winch.

The acetylene cutting and welding outfit has probably saved more money than any other part of bridge equipment, comparing the results with the initial expense. One man operating an acetylene torch will cut off more rivet heads than two squads can "bust" off by hand work. Bridge repair gang payrolls vary from \$40 to \$70 per day. The use of the acetylene torch for burning drifts may easily save 25 per cent of a gang's daily payroll on large jobs.

Pneumatic motors for boring holes incident to the construction of docks, draw bridges, protection piers, cribs and the complete renewal of long trestles will greatly expedite the work. The boring of 3,600 holes by compressed air on a crib constructed recently saved, by actual test, an equivalent of one man working 192 days.

The chain hoist is not universally used by bridge repair gangs and should be given more consideration. It can be used to perform about the same work as the two-sheave block and tackle. In general, one man operating a chain hoist will accomplish the same results as one or two men operating tackle blocks.

Considerable has been written regarding the use of motor cars for bridge gangs. The computed savings by supervisors of different roads varies from 35 min. per man per day to 20 per cent of the monthly payroll over the use of the hand car.

Some form of light pneumatic hammer for driving small sheet piling, operated by air furnished from a tie tamper, would be of considerable assistance to a small bridge gang. The steam hammer is a very useful device for this class of work, but most maintenance jobs are too small to warrant the expense of setting up a steam plant.



# Advantages of the Spherical Type Roller Bearing

## A New Design Which Combines Self-Alinement, Low Frictional Resistance and High Capacity

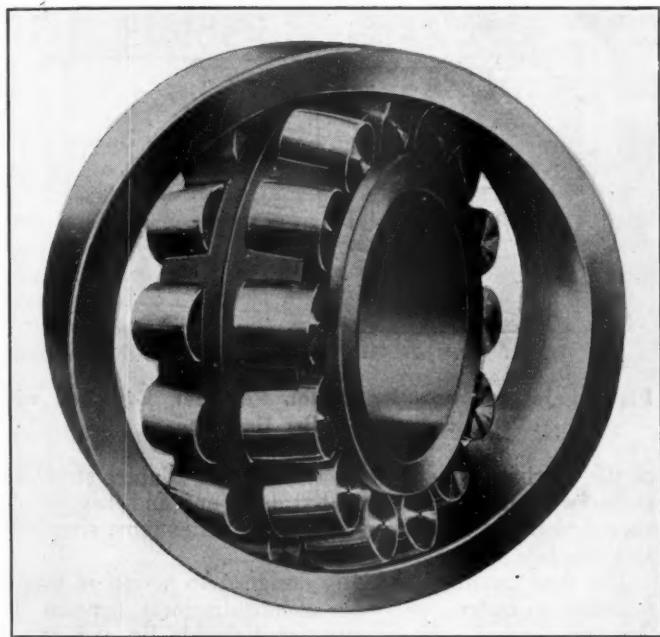
By H. E. Brunner  
Chief Engineer, S-K-F Industries, Inc.

ANTI-FRICTION BEARINGS have found limited application in railroad work in the past principally because the shocks which bearings on locomotives and cars receive are unusually severe. Numerous attempts have been made to develop special bearings adapted for such service but in general they have not been successful. The conditions under which the bearings on freight and passenger car journals and railway motor shafts operate require a bearing

maximum number of desirable features without any of those which had been found to be detrimental. The problem was further extended by the necessity of adapting the design thus developed to the already established standard sizes for ball bearings. This was accomplished with notable success and the "spherical type of roller bearing" is the result of the research and study outlined above.

Referring to Fig. 1 a longitudinal section through the mid plane of the bearing will be seen. Part A is the inner race of the bearing. It is secured to the shaft or journal according to the usual methods employed with ball bearings operating under corresponding load and speed conditions. A shrink fit, press fit or tapered sleeve, together with a suitable locknut may be used. Parts R are the two rows of rollers. Part B is the outer race, ground spherical on the inner surface from the center point O of the bearing. The outer race of the bearing is mounted in the housing according to the usual method for a ball bearing, which normally provides a slight clearance to facilitate creeping of the race in the housing while in service.

It will be seen from the figure that the bearing is a self-contained and self-aligning unit, two properties that are of



Spherical Roller Bearing, with Inner Race Turned to Show Construction

with the low frictional qualities and precision of a ball bearing combined with load carrying capacity comparable with that of a roller bearing but not obtained at the sacrifice of true rolling or by enforced rigidity. A new design of roller bearing which combines these characteristics has recently been placed on the market. As sufficient experience has already been had in a large variety of heavy machines to establish its merit, the purpose of the present article is to describe the construction and to analyze the design from a technical point of view.

The Aktiebolaget Svenska Kullagerfabriken of Gothenburg, Sweden, undertook in 1918, to study the problem of anti-friction bearings for heavy duty service. A careful analysis was made of the limitations affecting both the ball and the roller bearing in applications of the kind in question. This was followed by extensive tests of a large number of different types of bearings, the results of which were systematically studied. In this way there were discovered certain desirable characteristics of the various types and likewise objectionable ones, from the point of view of the heavy type of service for which it was necessary to provide.

With the conclusions of this experimental work at hand, the task was to devise a bearing which would incorporate the

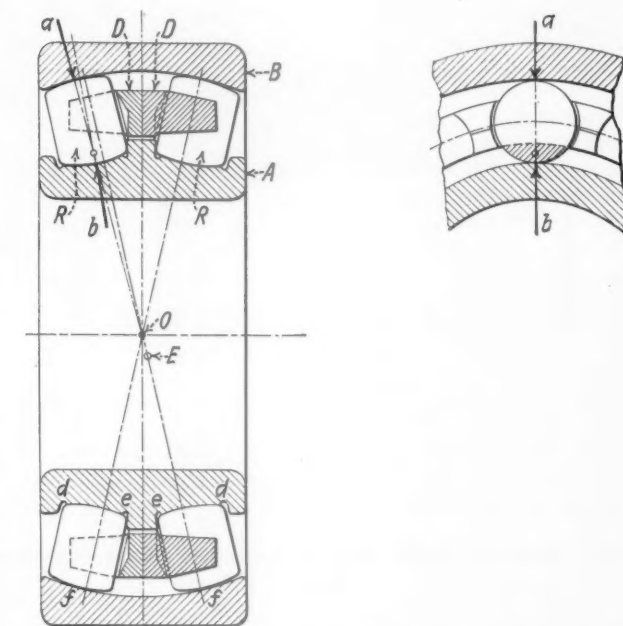


Fig. 1—Sectional Views of the Spherical Roller Bearing

the greatest importance. The former means that when the bearing is being installed, there is no adjustment required internal to the bearing itself, thus precluding the possibility of damage through initial maladjustment. The spherical surface of the outer race provides for self-alignment of the bearing to compensate for shaft deflections and unavoidable inaccuracies in machining and locating the housings. These two features are of particular importance in the field of heavy machinery, for which the bearing is designed.

The internal construction of the bearing will be made clear

by further reference to Fig. 1. On the inner race the roller  $R$  contacts with the groove  $de$  throughout its length thus providing the line contact of the roller bearing. On the outer race the roller contacts at the point  $f$  and due to the closeness of the roller curvature (in a longitudinal plane) radius  $Ef$ , with the race curvature radius  $Of$ , the contact is very intimate. It will be seen that the rollers are barrel shaped and have their largest diameter toward the inboard end. Actually the contact between the roller and the outer race will be a substantial area, due to the elasticity of these parts, and consequent deformation under load. From this it will be seen that the spherical type roller bearing embodies the theoretical characteristics of both point contact of the ball bearing and line contact of the roller bearing. The desirability of this combination of point contact on the outer race with line contact on the inner race was one of the conclusive results of the experimental work which preceded the development of this bearing. It should be observed that the line contact is provided on the inner race, which as is well known, is the weaker element on the typical type of annular bearing. The result is an excellent equalization of stress between the inner and outer races.

In the spherical type of roller bearing the axes of the rollers are held parallel with the axes of the shaft in a positive manner by means of the guiding flanges,  $e, e$ , on the inner race. The advantage of this provision is immediately reflected in the low coefficient of friction shown in tests of the bearing; this being somewhat greater than that of a ball bearing, but markedly lower than in other types of roller bearings.

The retainer  $D$  is carried on the land of the inner race and serves only to separate adjacent rollers and to prevent their

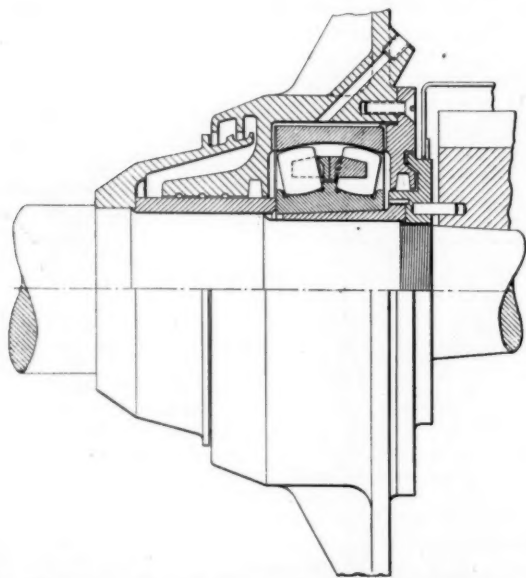


Fig. 2. Spherical Roller Bearing Applied to Motor Armature Shaft

contacting with one another. The retainer is usually made of bronze and is so designed that it holds the rollers from dropping out when the inner race is deflected relative to the outer race, as for cleaning.

The spherical roller bearing, developed as it was to meet the requirements of a specialized field of heavy duty applications, has already found a wide demand. Some of the present installations and typical designs are shown in diagrams herewith.

Fig. 2 illustrates an electric railway motor with a spherical type roller bearing on the pinion end of the armature shaft. The inner race is secured to the shaft by means of a tapered sleeve. A ball bearing is used on the opposite end of the

shaft where loads are comparatively light for the given space limitation.

Fig. 3 illustrates in principle the method of applying the spherical roller bearing to a motor rail car. Because of its self-aligning quality the bearing is particularly well adapted to the construction employing a journal box clamped in the pedestal. An unrestrained mounting can be had by employing this bearing in the rigid box as shown. The advantages derived are immediately evident in the greater flexibility of the truck and the reduced stresses which are imposed upon the bearing.

Careful consideration has been given the means of securing the bearing to the journal so as to permit of easy installation and at the same time providing a positive locking

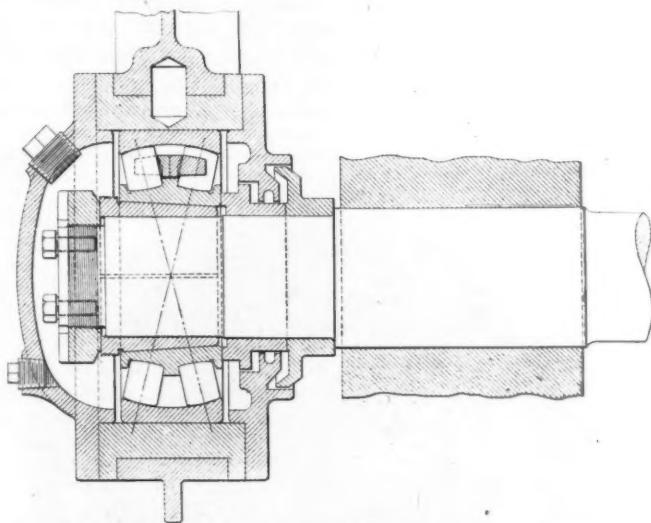


Fig. 3. Journal Box for Motor Rail Car Equipped with Spherical Roller Bearing

of the bearing to the shaft. The tapered adapter sleeve together with the very substantial lock nut and key should appeal to the railroad man because of its extreme simplicity and absolute security.

The dust guard is specially designed to permit of proper functioning under conditions of misalignment between the box and journal. The conventional double lip and groove in conjunction with the internal flinger provide for the retention of the lubricant.

The spherical type of roller bearing is equally well adapted to trucks employing the standard types of pedestal construction. Such design insures flexibility in a greater degree than that now obtained in standard practice. It appears to offer a possible solution to the problem of providing a less rigid truck construction, particularly in the field of motor rail cars.

Attention is directed to the provisions for excluding dust and dirt from the housing and for prevention of leakage of the lubricant. The latter consideration is of particular importance in the motor mounting shown in Fig. 2.

It is believed from the experience had with the operation of this type of bearing to date, that its field of application will be broadened beyond the scope originally contemplated in the design of the bearing. This applies particularly as regards the speed rating. It has further been found that, in equivalent sizes the spherical roller bearing has about twice the load capacity of the corresponding ball bearing. The thrust capacity of the bearing is substantial, making it well adapted to the carrying of combined loads.

The question of lubrication is very similar to that incurred with ball bearings under similar load and speed conditions. Oil is considered preferable, but grease may be used where conditions of design require. The saving in amount of lubri-



cant required as compared with plain bearings is precisely the same as with ball bearings.

The housing construction and the provision of suitable seals to exclude dirt and water from the bearings is the same as in the standard practice with ball and roller bearings.

The spherical roller bearing was originally developed and applied in Sweden. Since that time bearings have been installed in the United States, England, France and a number of other countries. The installations that are in service have shown conclusively that this bearing meets an imperative need and is well adapted to the requirements of heavy duty service.

The self-contained and self-aligning feature of the spherical roller bearing, together with its exceptionally low coefficient of friction and rugged load carrying capacity, characterizes it as a distinct advance in the development of anti-friction bearing. It offers possibilities that conform with the progressive principles of modern engineering practice.

## Hale Holden Shows Effects of Tax Increases

**B**Y ALLOWING government authorities to constantly and heavily increase the taxes of the railways, the public is permitting these authorities largely to defeat the efforts of railway managers to reduce the cost of transportation and provide more adequate service. This fact was used by Hale Holden, president of the Chicago, Burlington & Quincy, as the motif of a statement issued on March 2.

"The statistics of the railways for the entire year 1922, which have just become available, show that there was another large increase in their taxes," Mr. Holden said. "This is a fact of much significance, in view of other changes of exactly the opposite kind that occurred during the year. A general reduction of the freight rates was made in 1922. There were reductions in the wages of some classes of employees. There was an increase in the business handled, but in spite of this and the shop employees' strike, the railways, by efficient operation, succeeded in making some reduction in almost every class of their expenses. But while reductions in both rates and expenses were made, the benefits that might have been derived from these changes by both the railways and the public were seriously reduced by the fact that taxes were largely increased. The total taxes paid by the railways in 1922 were \$304,885,158. This is the largest amount ever paid, and is an increase of 10½ per cent over the taxes paid in 1921, an increase of more than 94 per cent over the taxes paid in 1916, and an increase of 178½ per cent over the amount paid in 1912, only 10 years ago. Six years ago the railways paid out 13 per cent of their net earnings in taxes, while last year it took 26 per cent of their net earnings

to pay their taxes. Their taxes in 1922 exceeded the cash dividends paid by them in any year since 1917.

"The western railways have been affected even more during the last 10 years by increases in taxes than the railways of the country as a whole. In 1912 their total taxes were less than \$45,000,000. In 1922 they were almost \$134,500,000, an increase of 208 per cent. In 1912 taxes took 12 per cent of their net earnings, and in 1922, 28 per cent.

"After paying their operating expenses and taxes the railways have left what is called 'net operating income' with which to pay interest on their bonds and dividends on their stocks and make improvements. While between 1916 and 1922 the taxes of the railroads increased 94 per cent, their net operating income declined 26 per cent.

"Attention was directed to the relationship between this steady and large increase in railway taxes and the present railway rates by Senator W. E. Borah of Idaho in a recent speech in the United States Senate. Mr. Borah said: 'It will be very difficult to reduce freight rates if we continue in this country to increase taxes upon the railroads as we have for the last four years.' He showed that in 1916 the tax upon the railroads in Idaho was \$540 per mile, and in 1920, \$1,458 per mile; that in Oregon it was \$530 per mile in 1916 and \$1,061 per mile in 1920; that in the state of Washington it was \$772 per mile in 1916, and \$1,709 per mile in 1920. Although the net returns earned by the railways since 1920, the last year mentioned by Senator Borah, have averaged only about 3.75 per cent on the valuation placed on them by the Interstate Commerce Commission, their taxes have continued to increase. In 1922 their total taxes were almost \$33,000,000 more than in 1920.

"These increases in taxes are, of course, made by government authorities representing the public. As Senator Borah said, they 'come back upon the producer, upon the shipper. These public utilities must collect this money from one source, that is, from those who ship.' The public has a right to demand, and does demand, that the railways shall be operated economically in order that it may get the cheapest transportation that is reasonably practicable; but in allowing government authorities to constantly and heavily increase the taxes of the railways the public is allowing them largely to defeat the efforts of railway managers to reduce the cost of transportation and provide more adequate service."

## Freight Car Loading

WASHINGTON, D. C.

**F**REIGHT CAR LOADING during the week ended February 17 showed a decline for the third consecutive week, to 817,778 cars as compared with 853,289 cars the week before. However, the loading was still greater than ever before at this season of the year, exceeding the figure for

REVENUE FREIGHT LOADED  
WEEK ENDED FEBRUARY 10, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded		
										1923	1922	1921
Eastern	1923	7,038	3,188	53,736	3,924	6,647	2,126	54,816	76,225	207,700	192,578	162,482
	1922	9,525	2,698	48,252	1,702	5,878	608	62,972	60,943	184,928	159,518	142,734
Allegheny	1923	2,928	2,911	53,866	7,225	3,696	1,671	44,506	68,125	111,663	98,438	95,458
	1922	2,822	2,410	55,751	3,889	2,836	687	44,934	46,189	111,663	98,438	95,458
Pocahontas	1923	193	79	21,309	611	1,184	162	5,990	6,436	35,964	35,509	22,366
	1922	251	68	25,250	235	961	20	5,530	3,194	35,509	35,509	22,366
Southern	1923	3,777	2,263	24,084	1,105	17,366	945	37,389	41,072	128,001	119,000	108,114
	1922	5,231	2,287	25,449	570	14,928	609	36,943	32,983	111,663	98,438	95,458
Northwestern	1923	13,071	9,823	9,371	1,778	21,320	975	25,897	29,428	111,663	98,438	95,458
	1922	13,732	9,230	9,699	1,033	15,466	397	25,413	23,468	111,663	98,438	95,458
Central Western	1923	10,402	11,975	22,625	432	7,985	3,760	33,708	43,612	134,499	120,491	99,684
	1922	17,286	10,932	22,973	285	5,248	829	31,445	31,493	120,491	120,491	99,684
Southwestern	1923	3,530	2,038	5,869	113	6,112	471	14,017	18,384	50,534	52,257	57,029
	1922	5,162	2,176	5,415	107	6,667	911	14,144	17,675	52,257	52,257	57,029
Total western districts	1923	27,003	23,836	37,865	2,323	35,417	5,206	73,622	91,424	296,696	271,186	252,171
	1922	36,180	22,338	38,087	1,425	27,381	2,137	71,002	72,636	271,186	271,186	252,171
Total all roads	1923	40,939	32,277	190,860	15,188	64,310	10,110	216,323	283,282	853,289	777,791	687,867
	1922	54,009	29,801	192,789	7,821	51,984	4,061	221,381	215,945	777,791	777,791	687,867
	1921	33,462	27,643	152,572	9,398	53,135	8,094	193,165	210,398	687,867	687,867	687,867

last year by 44,503 cars and the 1921 figure by 125,771 cars. Coal loading was 180,988 cars, or 7,795 cars below the total for the corresponding week of last year. Grain and grain products and merchandise also showed a decrease as com-

during the period from February 7 to 14 to 72,852 cars, including 27,200 box cars and 38,132 coal cars. Surpluses amounting to 27,172 cars were also reported.

The average mileage per car per day in 1922 was 23.5,

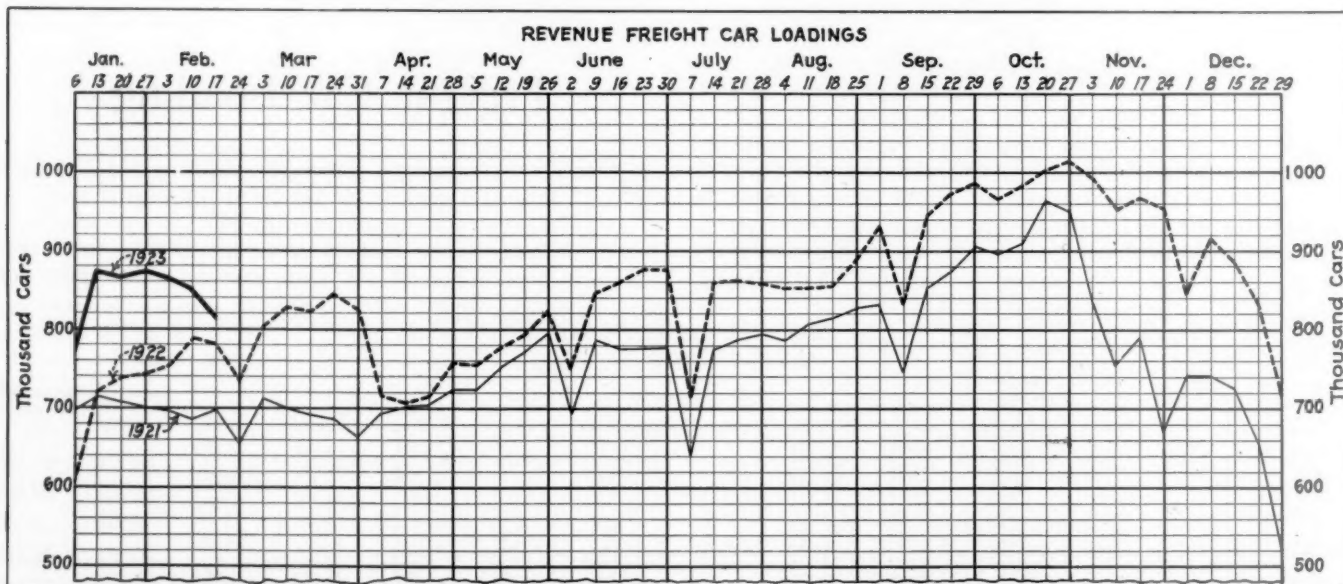
### REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, FEBRUARY 17, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded		
										Corresponding period		
										1923	1922	1921
Eastern	1923	8,195	3,017	49,538	3,613	5,352	1,521	52,406	71,373	195,015	.....	.....
	1922	10,713	2,788	45,847	1,632	5,371	561	60,381	60,042	.....	187,335	164,354
Allegheny	1923	2,524	2,621	52,033	6,950	3,214	1,761	43,517	67,951	180,571	.....	.....
	1922	3,145	2,340	54,316	3,676	2,638	787	44,955	46,066	.....	157,923	145,255
Pocahontas	1923	214	61	19,808	709	1,365	163	5,938	3,549	31,807	.....	.....
	1922	264	83	24,617	188	928	22	5,642	2,907	.....	34,651	21,585
Southern	1923	3,880	2,368	22,741	1,318	20,385	1,500	38,150	45,671	136,013	.....	.....
	1922	4,651	2,168	26,124	516	14,632	460	36,592	35,229	.....	120,372	109,558
Northwestern	1923	10,623	8,475	8,024	1,797	13,370	743	21,863	24,654	89,549	.....	.....
	1922	13,955	9,210	9,984	1,090	14,924	444	25,299	22,386	.....	97,292	91,724
Central Western	1923	10,855	11,563	23,212	387	7,610	3,690	33,146	40,761	131,224	.....	.....
	1922	17,169	11,330	22,679	342	5,234	1,016	31,839	34,046	.....	123,655	102,053
Southwestern	1923	3,888	2,169	5,632	138	8,135	438	13,893	19,306	53,599	.....	.....
	1922	4,966	2,121	5,216	122	6,470	857	13,978	18,317	.....	52,047	57,478
Total western districts	1923	25,366	22,207	36,868	2,322	29,115	4,871	68,902	84,721	274,372	.....	.....
	1922	36,090	22,661	37,879	1,554	26,628	2,317	71,116	74,749	.....	272,994	251,255
Total all roads	1923	40,179	30,274	180,988	14,912	59,431	9,816	208,913	273,265	817,778	.....	.....
	1922	54,863	30,040	188,783	7,566	50,197	4,147	218,686	218,993	.....	773,275	.....
	1921	36,729	28,331	147,404	8,725	52,998	8,120	194,063	215,637	.....	.....	692,007
Increase compared	1922	.....	234	.....	7,346	9,234	5,669	.....	54,272	44,503	.....	.....
Decrease compared	1921	14,684	.....	7,795	.....	.....	.....	9,773	.....	.....	.....	.....
Increase compared	1921	3,450	1,943	33,584	6,187	6,433	1,696	14,850	57,628	125,771	.....	.....
Decrease compared	1921	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February 17	1923	40,179	30,274	180,988	14,912	59,431	9,816	208,913	273,265	817,778	773,275	692,007
February 10	1923	40,939	32,277	190,860	15,188	64,310	10,110	216,323	283,282	853,289	777,791	687,867
February 3	1923	41,736	33,675	189,773	14,199	69,767	11,239	216,876	288,410	865,675	747,895	699,718
January 27	1923	46,819	35,436	194,738	14,503	69,613	12,088	211,879	286,088	871,164	740,386	701,605
January 20	1923	48,280	33,790	192,824	13,817	70,066	10,900	210,860	285,041	865,578	731,109	708,658

pared with last year but miscellaneous freight showed an increase of 54,272 as compared with last year. The summaries for the week ended February 17 and also for the preceding week, as compiled by the Car Service Division of

according to a summary of ratios of operation compiled by the Bureau of Railway Economics. This was better than the average for 1921, when it was 22.4 and it was also better than the average for 1919, 23.1, but it was lower than the



the American Railway Association, are given in the accompanying tables.

The average shortage of freight cars decreased during the week ended February 7 to 70,522 cars, but increased again

figures for 1917, 26.1; 1918, 24.9; or 1920, 24.9. The average tonnage per car was 26.9 in 1922, as compared with 27 in 1917; 29.1 in 1918; 27.8 in 1919; 29.3 in 1920, and 27.6 in 1921.



# Arguments on Power Brakes Heard by I. C. C.

## Investigation By Commission Develops Controversy Between Two Companies

WASHINGTON, D. C.

ORAL ARGUMENTS of the most contradictory nature as to the merits or demerits of the Westinghouse and the Automatic Straight Air brakes were heard by the Interstate Commerce Commission on February 23 and 24 in connection with the commission's investigation begun early last year as to the adequacy of the present power brake equipment of the railroads, which has developed largely into a controversy between the Westinghouse Air Brake Company and the Automatic Straight Air Brake Company. Some 4,000 pages of testimony were taken before examiners in this proceeding, which counsel for the Westinghouse Company characterized as amounting only to an effort by the A.S.A. Company to have the commission force the railroads to use its device. Counsel for the A.S.A., however, denied they had asked the commission to discard existing equipment and said they were merely seeking an opportunity to have their brakes, if approved by the commission, introduced gradually with the existing brakes.

Edgar E. Clark, former chairman of the Interstate Commerce Commission, and Wilbur La Roe, Jr., represented the Automatic Straight Air Brake Company, while Paul D. Cravath and Paul Synnestvedt appeared for the Westinghouse company. These two companies were allotted three hours and 45 minutes each, while the railroads, represented by C. C. Paulding and A. P. Thom, Jr., were allotted one hour and 15 minutes. A. H. Lovell, appearing for the train service brotherhoods, relinquished part of his half hour to the A.S.A. counsel, while Mr. Paulding gave up part of his time to Mr. Synnestvedt and Mr. Thom confined himself to filing a brief, in which he denied the authority of the commission to prescribe brake specifications. At the conclusion of the argument, Commissioner Potter asked several questions regarding the possibility of future comparative tests of the two brakes if the commission shall find itself dissatisfied with the record already made.

### "Inherent Defects" Ascribed to Standard Brake

The opening argument was made by Mr. Clark, who described the differences between the A.S.A. brake and the standard equipment and the advantages claimed for the former. A large part of Mr. La Roe's argument was devoted to the claim that the standard Westinghouse air brake equipment does not permit an emergency application following a service application, because of the dissipation of the air in service applications, and that in going down grades it is necessary to release the brakes repeatedly in order to recharge the cylinders. He cited various accidents ascribed to this "inherent defect" in the Westinghouse brake, while he said that the A.S.A. brake provides a braking power available for a full emergency application at all times and under all conditions. He also asserted that the record shows that the A.S.A. brake makes a smooth emergency application under conditions which the Westinghouse brake results in shaking up the train. He said that with the Westinghouse brake the braking power differs with each car because of varying degrees of brake cylinder leakage and piston travel for which the A.S.A. equipment compensates.

When Mr. La Roe said that A.S.A. brakes are in constant use on the Chicago & Eastern Illinois, Virginian, Norfolk & Western, Denver & Salt Lake and Erie, and had referred to various tests that had been made on the Virginian and Norfolk & Western, Commissioner Potter asked what reasons the officials of those roads had given for not adopting

the brake. "What is the nigger in the wood-pile?" he asked. Mr. La Roe said that the Norfolk & Western had bought 100 brakes and had asked for some to use on dining cars but that the company had written that it had discontinued the manufacture for the present.

Mr. Potter then asked why he had not called some of the higher officers of the roads to testify. Mr. La Roe replied that he had called train and engine men and air brake inspectors but that it was not customary in an investigation of this kind to call the higher officers. He went on to say that there had been no fundamental improvement in the Westinghouse brake since 1873 and that this was explained "partly by the Westinghouse monopoly and the close relationship between that company and the railroads." When Mr. Potter said that his question had not yet been fully answered Mr. La Roe said that no railroad in the United States has more inefficient brake operation than the Virginian and that he did not know why it had not adopted the A.S.A. but that the Norfolk & Western had bought as many as the company could supply. "That is very valuable testimony" said Mr. Potter. Mr. La Roe said that the A.S.A. company's capacity to furnish equipment and its financial resources were limited, and that it had incurred tremendous expenses in making tests.

### Counsel for Westinghouse Says

#### Inquiry Has Missed Its Purpose

Paul D. Cravath, counsel for the Westinghouse Company, said that whereas the order of the commission had indicated a broad inquiry as to whether, and if so how, the present brake equipment of the railroads could be improved, it had missed its purpose. It had developed into a controversy between two air brake companies in which the A.S.A. Company had tried to get the commission to force the railroads to use its brakes and had attacked the Westinghouse brakes so vigorously that the latter company had had to concentrate on its defense and had been given no opportunity to offer suggestions as to improvements over the present system. He quoted the order of the commission instituting an investigation on its own motion, saying that it was probably justified but that it had soon been followed by an announcement of the taking of a deposition regarding the automatic straight air brake and that the proceeding soon took on the aspect of a case in which the A.S.A. Company was a complainant. Mr. Cravath said that it was an "open secret" that Clark and La Roe had had a hand in the preparation of a questionnaire sent to the roads by the commission. This was indignantly denied by Mr. La Roe whereupon Mr. Cravath said that he had been misinformed.

When the hearing was begun, he continued, the railroads were invited to testify but the Westinghouse Company was not invited, nor any other air brake company except the A.S.A. and Mr. Clark made the opening statement. The Westinghouse Company was represented, however, because some of its employees were called as witnesses. When Mr. Cravath emphasized the ordering of the investigation "on the commission's own motion," Commissioner McChord said the A.S.A. Company had filed a petition and Commissioner Potter explained that the commission frequently undertakes investigations on its own motion although it may have received the idea from a petition or a letter or even from a conversation.

Mr. Cravath also said that the answers of the railways

to the questionnaire were used in a manner not intended by the railways, because there was nothing to show that they were to be used in a comparison of the merits of two devices and that the hearing from beginning to end had been devoted to an attack on the existing standard air brake apparatus originated and mostly manufactured by the Westinghouse Company, and a defense by the Westinghouse Company and the railways.

The A.S.A. Company, Mr. Cravath said, has carried on a vigorous propaganda for 13 years but its brake has not yet been adopted by any railroad and not more than 205 sets of its equipment have ever been in use at one time, while the tests which it has conducted have not been such as to furnish a real demonstration.

When Commissioner Campbell questioned Mr. Cravath's statement that all the proceeding amounts to is an effort to force the railroads to adopt the A.S.A. brake, Mr. Cravath said that the specifications proposed in the company's brief can only be met by its brake.

"Do you claim your company could not meet them?" asked Mr. Campbell.

"We claim we have a basic patent that they would infringe," replied Mr. Cravath, "but they claim that this type can only be made by them. My company says it would rather retire from business than make it, that it is highly dangerous and that the specifications would result in retrogression rather than progress."

Mr. Cravath denied that there had been no improvement since 1873. He admitted that the fundamental principle of the Westinghouse brake had been adhered to but said that most radical changes had been made and that the introduction of the K triple valve 15 years ago had made the modern long train possible. The company had not been asked to submit any proposals for improvement at the hearings, he said, but it does not contend that its present standard is perfect and if the commission has sufficient doubt as to the efficiency of the present standard it would be glad to place its entire resources at its disposal for the purpose of making thorough tests, in co-operation with the strongest committee the railroads can select for the purpose of showing how the existing apparatus may be improved.

The question of cost is of great importance, Mr. Cravath said, because the equipment now in use represents an investment of \$270,000,000 while the cost of the A.S.A. is much higher and a new type of equipment twice as good could not be adopted without great expense unless made interchangeable. He said the use of A.S.A. equipment on a few cars in a train does not afford an adequate test and that it will not work satisfactorily with the standard equipment. From its selfish standpoint the Westinghouse Company would be delighted if the commission would require new apparatus, Mr. Cravath said, because that would increase its business and its profits but it is a serious question as to whether the advantages would outweigh the disadvantages. "The time may have come when a step in advance may wisely be taken, but the present inquiry has not elicited the information," he said in conclusion.

#### Train Employees Ask Better Brakes

A. H. Lovell said that the train service employees are primarily interested in the safety question, that they think the present brakes are insufficient and that they want the best obtainable. They are not all of one mind, however, he asserted, because many of them know only the Westinghouse brake, but those who have had experience with some cars equipped with A.S.A. brakes in their trains believe they caused the standard brakes to work better. In reply to questions by Commissioner Potter, he said the brotherhoods do not endorse the A.S.A. or any particular specifications, but they think that when an engineer has made a service application he should still be able to stop his train in an emergency.

#### Tests Declared Inadequate

Mr. Synnestvedt said that the Westinghouse Company sympathizes with the operating men and believes that every effort should be put forth to give them the safest possible equipment, but that the great increase in the number of cars in long freight trains has presented problems not appreciated by anyone who has not made a life time study of the subject, and that the entire record in this proceeding shows nothing wrong with the equipment. He compared the 15,000,000 train operations a year made with the standard brakes under all conditions of service with three tests made by the A.S.A. Company, which he said were made with new equipment under most favorable conditions and said that the latter had not been subjected to a real test under the conditions which it was particularly designed to meet. He characterized the A.S.A. brake as "absolutely intolerable and unsafe," and insisted that his company would close up its plants, if the commission should require its use, "until the railways find out that it is no good and we will have the job of replacing it."

When Commissioner McChord asked if there had been any accident resulting from the use of the A.S.A. brakes, Mr. Synnestvedt said that there is nothing in the record to show what has happened to them since the special tests; that they have been used in trains equipped mainly with the standard brake so that there is no way of knowing whether they are working at all. Mr. Clark interrupted to say that the general air brake inspector of the Norfolk & Western had testified that the 100 sets of brakes in use on that road had worked in harmony with the other brakes since the test and that there had been no trouble. He also declared that the tests on the Virginian had shown successful results with a train including 50 sets of each kind of brake. Mr. Synnestvedt said that the use of 200 sets of brakes is not sufficient to show that they represent anything more than dead weight in a train, and that it would not be possible to move the traffic of the country with them because if enough were used they would stall the trains. "If the commission issues any order at all," he declared, "it ought to prohibit the use of that brake in interstate commerce."

Mr. Synnestvedt then took up the development of the Westinghouse brake, showing charts illustrating the various stages in its improvement, and saying that what the other side called its great defect was in reality the keystone of the arch of its success. He said that the company's policy had been to give the railroads the benefit of each successive advance in the art while maintaining interchangeability and harmonious action with the older equipment, but that the A.S.A. brake has the same defects which George Westinghouse overcame 50 years ago because of the attempt to combine automatic and straight air operation to the confusion of the apparatus.

When Commissioner Potter asked if it would be possible to demonstrate these defects by a series of comparative tests by experts selected by the commission and whether the Westinghouse Company would submit to such tests Mr. Synnestvedt replied that it would if allowed to know the conditions under which the tests were to be conducted and that it had suggested such tests by a committee selected by the railroads in co-operation with the commission, but that the A.S.A. Company had been unwilling to submit to a test on the test racks of the American Railway Association at Purdue University on the ground that rack tests mean nothing.

Replying to assertions by the A.S.A. counsel, he said that most of the troubles cited from accident reports did not represent brake failures and that in many cases the brakes had done just what they were supposed to do. He said they had ignored the fact that shocks experienced in applying the brakes under certain conditions at low speed are inevitable unless they are to be softened at the expense of braking power. It is a matter of compromise. The Westinghouse Company



could put a second reservoir on freight cars as it has done on passenger cars and increase the brake capacity 20 per cent if it is desired.

As to the assertion that the air is dissipated by frequent releases in "cycling" down a grade, Mr. Synnestvedt said that if the brake is in good condition and is handled properly the method of cycling recommended will retain some pressure by the use of the retaining valve and even build up the pressure. Commissioner Potter said he had always understood that this defect existed in the Westinghouse brake and that eminent railroad officers had cited this as making necessary the use of hand brakes on long grades. Mr. Synnestvedt insisted that if the operation is right the pressure builds up after a service application, but that roads which do not have heavy grades may need hand brakes because they do not have to keep their air brakes in the best condition. He admitted that after a service application a full emergency application is not possible but said that a quick serial application is possible.

#### Railroads Propose Further Tests

C. C. Paulding, on behalf of the railroads, devoted himself largely to answering the charge that the railroads always oppose improvements in devices and read a long list of new applications, such as superheaters, etc., which have been adopted without the requirement of any government body. He said that it had been his work for years to oppose bills in Congress and in state legislatures to require railroads to adopt new devices or methods and in almost every case the devices sought to be required were still in the test stage. He said the air brake department of a large road is constantly busy making observations and getting reports in the effort to improve the equipment and that orders for brakes are only placed on specifications designed to suit the exact purpose for which they are intended. "We do not say we have a perfect brake," Mr. Paulding said, "but we do say we have today a valve that works, as against one sought to be put upon us that don't work. The railroads don't buy it because it is too slow in operation. That is enough for any railroad man." He said that if the commission considers it necessary, the American Railway Association would undoubtedly be glad to place its test rack at its disposal and he suggested that tests be made of 100 new valves of each kind and then of 100 taken out of service.

Mr. La Roe denied that his company had declined an invitation to test its brakes on the Purdue rack, saying that the "invitation" had been merely a suggestion made by a railroad employee to the predecessor of the A.S.A. company. Mr. Clark said that the questionnaire was so worded as to leave no doubt as to its purpose and he repeated what he said he had stated in his opening statement at the hearing, that his company is not seeking any revolutionary change in existing equipment and does not propose that it be discarded in favor of the A.S.A., but that the latter works in perfect co-ordination with the existing equipment and can be adopted gradually and progressively. It is not seeking an endorsement of the A.S.A. but hopes the order of the commission will be such as to permit its use.

Commissioner Potter asked whether the commission, if it thinks the specifications proposed are necessary to safety and economy, should prescribe them if the device can be produced by only one company, unless it could control the terms and conditions on which it could be furnished. Mr. Clark said that Congress had passed the power brake law when it was well known that it meant the use of a particular brake but that he was authorized to say that if the commission should prescribe specifications by which the brake can be manufactured on a large scale his company desires only a fair profit and if the price is brought into question it will submit its books to the commission and heed any suggestion the commission may make.

Mr. La Roe made the closing argument, after which Commissioner Potter asked whether, if the commission is not satisfied with the record and should desire further tests at Purdue, such tests could be arranged. Mr. La Roe said his company would prefer road tests and that the commission could have them made under its supervision on the Norfolk & Western or any other road. The company would welcome such tests, he said, except for the matter of the expense involved.

## I. C. C. Reports on Anthracite

WASHINGTON, D. C.

THE Interstate Commerce Commission has definitely concluded that it should not order any common carrier to lay an embargo against the shipment or transportation of anthracite coal to Canada or any foreign country, according to a report sent to the Senate on February 27 in response to a Senate resolution introduced by Senator Walsh of Massachusetts calling for information as to what the commission has done regarding the transportation and distribution of anthracite coal. The report also vindicates the position of the railroads that priority orders would not meet the situation. It refers to the formal investigation instituted by the commission in which public hearings were held in New York and Washington for four days during February and says that prior to the adoption of the Senate resolution it had obtained reasonably full and reliable current information on the subject in the usual course of its service work and that the miners and shop craft strikes had brought about such conditions in the transportation and distribution of fuel that they have received its close attention throughout the past nine months. The commission also expressed the opinion that no steps or action other than the action already taken should be taken at present as "there is now active co-operation of federal, state and local fuel administrators, and of railway officials, with it in expediting the movement of anthracite coal to points of need, and preference and priority is being given the movement of anthracite coal without the material changes in plans of railway operation that might arise from the imposition of an inflexible priority order upon carriers which at present are under great stress in operating their lines."

The report also says in part:

"The allotment to any community is not more than 60 per cent of a normal supply and the basis for the allotment is the consumption of anthracite coal in the several communities during the coal year ended March 31, 1922, which included a comparatively mild winter. The present winter has been especially severe in the New England states and in the state of New York and undoubtedly the communities in those states have needed more fuel this winter than they used during the corresponding period last winter, and, therefore, the basis of allotments of anthracite for this winter is below the quantity desired by those communities. Necessarily each of them must procure and use fuel other than anthracite to augment the supply of anthracite which they may reasonably expect to receive. The shortage of fuel undoubtedly has been accentuated by delay in the transportation of coal ascribable to insufficient motive power, to heavy snows and to storms which have impeded rail transportation.

"The Pennsylvania Fuel Commission has protested against the suggestion of an embargo against shipment of anthracite coal to Canada. That commission recommends full compliance with the assurances given by representatives of the United States and by that commission to representatives of the Dominion government.

"It seems to us that such a drastic action as an embargo of the transportation of anthracite coal to Canada, ought not

to be taken to attain such an inconsequential increase of our domestic fuel supply during such a short period.

"We are not persuaded that during the remaining six weeks of the present coal year there should be departure from the plan of distribution adopted by the federal and state representatives in September, 1922. It seems to us that an embargo against the shipment of anthracite coal to Canada, if laid, would effect a substantial departure from that plan.

"We cannot give our approval to an embargo which, if enforced, might benefit certain communities but which inevitably would deprive other communities of their allotted supply of anthracite coal, which in most cases is but 60 per cent of the quantity actually needed. We can not overlook the possibility that such embargoes, if approved, might tend to incite appropriation of a full supply of fuel in the state or the communities in which it is produced.

"We have given consideration to the expediency of issuing an order for priority in the movement of anthracite coal from the mines in Pennsylvania to points of consumption in the New England states and in the northeastern section of the State of New York. Several reasons and conditions have impelled us to refrain at present from issuing such an order for priority. A regular and orderly movement of cars through classification yards of the carriers is essential to normal or expedited movement of traffic. The plans of switching, of classification of cars, and of making up trains in such yards generally contemplate the assembling of cars on the several tracks in such yards in accordance with the destinations, or groups of destination, of such cars. The yard and train crews of the individual carrier are familiar with the plan in use. A priority order would impose a different plan upon the operation of such yards, that is, it would require a special classification of one or more commodities which would call for reassignment of yard tracks, additional instructions to many railway employees, and plans for the handling or storage of non-priority freight traffic on the line at the time the priority order becomes effective.

"The need for expedited movement of anthracite coal from mines in the State of Pennsylvania to the New England states and to approximately 60 points in the State of New York, as presented to us, seemed to be immediate and pressing. Therefore, on February 16, 1923, we took action which we believe will be more effective than an embargo or a priority order would be. We sent telegrams to the presidents of the Delaware & Hudson Company, the Boston & Maine Railroad Company, the Boston & Albany Railroad Company, the New York, New Haven & Hartford Railroad Company, and the New York Central Railway Company. Each of those presidents responded with a promise of co-operation and they immediately took action to that end. We also sent our service agents to the appropriate gateways, classification yards, and points where anthracite coal was evidently being detained in transit, with instructions to act and co-operate with state and local fuel administrators and with railway officials and employees to the end that all available anthracite coal should be promptly transported to the communities most in need of it. The American Railway Association also sent its agents to those points with instructions to co-operate with all concerned.

"Prior to the hearings, no substantial evidence as to any purchase or sale of anthracite at prices unreasonably or unjustly high had been brought to our attention, formally or informally. At the hearings we afforded an opportunity for the presentation of evidence by any person who had information in respect of the purchase or sale of anthracite coal at prices unjustly or unreasonably high. One person suggested that advertisements which had appeared in certain Canadian newspapers were indicative of such purchase or sale. However, competent evidence of the purchase or sale of such coal at such prices is not before us and information sufficient to invoke further investigation thereof has not been

presented to us. We are of opinion that no steps or action other than the action described above should be taken at present."

## The Railroad Renaissance\*

**T**ALK is that shortly there may be ushered in a railroad renaissance.

This word is used in the sense that the railroad man will enjoy an inspirational awakening of interest in his work, with corresponding greater pride in performance of an essential task. He will demand of the public that it take a clear and true view of steam line transportation and accord the appreciation justly due.

Such a revival of interest in the railroad man's contribution to civilization carries with it the realization on his part that men possessing "railroad sense" are born to this particular undertaking, as allegedly are poets and masters in art.

The initial period of the renaissance will bring a heightening in the prestige of those classes of railroad men who have gotten out of focus and are blurred in the picture of national life. Exaggerated importance given to the off-duty activities of a comparative few has resulted in some whole classes of men in service suffering an unjust appraisal at the hands of that portion of the public which knows the least about railroading. Smelling one bad egg, some people have without investigation condemned the entire case.

Only a few weeks ago a daily newspaper, in reporting a police incident, referred to unarrested suspects as "looking like railroad men." Taken to task for the printing of such a statement, the reporter and his editor confessed that they had "just let the expression slip into print" but set up the defense that "the police sergeant had spoken the words." Unjust as was such a reference in the daily press, the very fact that it could even "slip in" unguardedly is sufficient to put railroad men on their toes. The incident reveals a picture of railroad men which at least part of the public entertains. Distorted, slanderous, irritating—all these terms may be employed in denouncing the incident. But such action does not effect a desired re-establishment of the railroad men in his true character in the eyes of the public as a whole.

The situation calls for a constructive program of enlightenment. Take the Pennsylvania Railroad System for example. Here we are, nearly a quarter of a million strong, performing a task absolutely vital to civilization. Without us there imaginedly could be commercial catastrophe and famine.

It would take a movie of hundreds of reels and thousands of subtitles properly to film this family engaged in its myriad duties. An attempt to write even a brief scenario touching just the high spots in the construction and operation of the complex machine called a railroad system would result in a picture warranting every man connected with rail service in taking pride in the fact that he is a part of it and asking the public to grant him merited appreciation.

There used to be a village grocery joke about the man in train service possessing an inamorata in every terminal. The ancient wheeze yet is heard at times. It would be difficult to imagine a grosser libel. A few gay Lotharios there may be. But the overshadowing majority of rail employees is composed of home-makers and home-owners, who love America and its social institutions and who struggle with all the power at their command to put their children through schools and colleges.

Scan American life, if you will, and find any other class of citizens working any harder, or any better, or to a more essential end. Ask yourselves if railroaders are not entitled to look the world in the eye and hold position in the front rank.

\*An editorial from The Pennsylvania News, Central Region.



# Hearing on the Railroad Consolidation Plan

## Proposed Transcontinental Systems Meet Little Objection But Many Modifications Suggested in Southwest

WASHINGTON, D. C.

HEARINGS on the Interstate Commerce Commission's tentative consolidation plan were resumed on February 26 for the taking of further testimony on Systems Nos. 13 and 17, as to which the Union Pacific and the Southern Pacific were not heard at the last hearing because the Central Pacific case was still pending, and also testimony on Systems Nos. 18 and 19.

### Plan for Four Western Systems Proposed

Additional testimony was also taken on Systems 14 and 15, Burlington-Northern Pacific and Milwaukee-Great Northern. An interesting feature of this was a plan suggested by Hale Holden, president of the Chicago, Burlington & Quincy, for the grouping of the western railroads into four systems of approximately 30,000 miles each. Such a suggestion had been made by Mr. Holden at a previous hearing and Commissioner Hall had asked that he submit it in more specific form.

Mr. Holden expressed the opinion that the tentative plan of the commission for the consolidation of the railroads in the West must either be reduced in size, or go further and provide for somewhat larger systems, so as to preserve competition and for future development, saying that, in principle, each western system should have access to the Pacific Coast territory and to the Gulf of Mexico, so that each system would have reasonably equal competitive opportunities, and because the effect of the competition of traffic moving through the Panama Canal is making it evident that new routes for the movement of traffic are being developed throughout the West.

Mr. Holden produced maps showing the four main systems, which he identified respectively as the Burlington, Union Pacific, Santa Fe, and Southern Pacific systems. Defending these systems, he showed that in geographical extent they would not be materially more widely extended than several of the systems proposed by the plan of the commission or than many present-day systems. The tentative plan of the commission proposes seven western systems.

Mr. Holden pointed out, however, that the more important test of efficient management was in the volume and density of business, quantity of equipment, number of employees, and features of that kind. He introduced a table of figures comparing statistics of this kind on the four large groups proposed with similar statistics of traffic and operation on the New York Central and Pennsylvania, and showed that none of these western systems would approach the volume of traffic now being handled on either the New York Central or the Pennsylvania. Successful operation would be provided by a sensible scheme of administration, with proper subdivisions of mileage, and ample local authority to insure prompt and satisfactory public service.

Mr. Holden expressed the conviction that large systems of this type would soon prove to be in the interest of better service, more flexible car supply and eliminate a great deal of delay and expense which is now inevitable because of so many separate properties, interchange and inspection points and duplicate services and facilities. He thought that the interest of the shipping and traveling public would not suffer but would be improved because, while competition would be fully preserved throughout the whole territory, a better general standard of service would be provided.

Mr. Holden stated that the Burlington, Northern Pacific, Great Northern and Colorado & Southern were prepared to actually consolidate if authority of the commission were

given, and urged that this permission be granted so that a real beginning could be made in carrying out this important provision of the Transportation Act.

The four main groups as tentatively suggested by Mr. Holden for consideration would include the following roads (the Denver & Rio Grande and Denver & Salt Lake to be common to Groups 2 and 3):

#### GROUP 1—Miles Operated, 30,945

Chicago, Burlington & Quincy (Inc. QO&KC)  
Great Northern  
Northern Pacific  
Spokane, Portland & Seattle  
Colorado & Southern  
Fort Worth & Denver City  
Wichita Valley  
Trinity & Brazos Valley  
Colorado & Wyoming  
Green Bay and Western  
Kansas City Southern  
Louisiana Railway and Navigation Co.  
Chicago Great Western

#### GROUP 2—Miles operated, 35,976

Atchison, Topeka & Santa Fe System  
Chicago & North Western  
Chicago, St. Paul, Minneapolis & Omaha  
Northwestern Pacific  
Midland Valley  
Missouri & North Arkansas  
Louisiana & Arkansas  
Fort Smith & Western  
Mineral Range  
Duluth, Missabe & Northern  
Duluth & Iron Range  
Spokane International  
Duluth, Winnipeg & Pacific  
Copper Range  
Lake Superior & Ishpeming  
Minneapolis, St. Paul & Sault Ste. Marie  
Duluth, South Shore & Atlantic  
St. Louis Southwestern  
Chicago & Eastern Illinois  
New Orleans, Texas & Mexico  
Western Pacific  
Denver & Rio Grande Western (½)  
Denver & Salt Lake (½)

#### GROUP 3—Miles operated, 35,627

Southern Pacific  
Central Pacific  
Chicago, Rock Island & Pacific System  
El Paso & Southwestern  
Kansas City, Mexico & Orient  
Vicksburg, Shreveport & Pacific  
San Antonio & Aransas Pass  
Missouri Pacific  
Toledo, Peoria & Western  
Chicago, Peoria & St. Louis  
Missouri, Kansas & Texas System  
Missouri Oklahoma & Gulf  
Denver & Rio Grande Western (½)  
Denver & Salt Lake (½)

#### GROUP 4—Miles operated, 32,419

Union Pacific System  
Los Angeles & Salt Lake  
St. Joseph & Grand Island  
Chicago, Milwaukee & St. Paul  
Chicago, Terre Haute & Southeastern  
Chicago & Alton  
St. Louis-San Francisco System  
Minneapolis & St. Louis  
Wabash (west of Mississippi River)  
Texas & Pacific  
International & Great Northern  
Chicago, Milwaukee & Gary

T. M. Schumacher, president of the El Paso & Southwestern, said that the grouping of that road with the Southern Pacific and Rock Island is logical if the roads are to be grouped, but that he is not in sympathy with the proposed plan of grouping the railways, feeling it is impractical and unworkable. He doubted the wisdom of grouping the

railroads into 20 to 35 systems, he said, because it would have the effect of reducing competition and initiative, to minimize which he believes will be harmful to the general business and industry of the country, and because the mileage of the various groups would be much larger than that of the railway systems of today, which would tend to reduce efficiency. His thought was that the railroads today should have better and closer supervision and that this will not be gained by increasing the mileage of the systems.

Frank Andrews, general counsel of the Gulf Coast Lines, said he had no protest to make against the placing of those lines in the Chicago-Missouri Pacific system, but he objected to the suggestion made in Professor Ripley's report that they be distributed among other systems. Since they became independent, Mr. Andrews said, these lines are being successfully operated, are prosperous and are adequately serving their community.

#### System No. 13 Approved by Union Pacific

Carl R. Gray, president of the Union Pacific, said that while it has been the belief of the Union Pacific that its lines should terminate, as they do now, at the Missouri river, serving impartially all lines which extend from the east to the Missouri river, it recognizes that the Transportation Act evidences a legislative policy for a consolidation of all the railroad properties into a limited number of large systems, and while there is no compulsion in the present law, the Union Pacific desires to co-operate in full measure with the announced policy of Congress. It is, therefore, willing to effect consolidations with other railroad properties which are natural alliances, provided, of course, the consolidations can be effected on terms acceptable to it.

The tentative plan of the commission proposes a consolidation with the Union Pacific system of the Chicago & North Western and its affiliated lines, the Chicago, St. Paul, Minneapolis & Omaha, the Wabash lines west of the Mississippi river, and the Lake Superior & Ishpeming. It also provides for trackage rights over the Colorado & Southern from Cheyenne to Orin Junction, Wyo.

"If the system of which the Union Pacific is a part," Mr. Gray said, "is to extend east of the Missouri river, it is my view that the appropriate and natural alliance is with the Chicago & North Western. While there has at all times been a free interchange between the Union Pacific and each of the lines extending from Chicago to the Missouri river, the North Western is the line with which there has been by far the greatest interchange. The consolidation of these lines will maintain 'existing routes and channels of trade and commerce,' as required by the law, to a greater extent than the consolidation of any other Chicago-Missouri river line with the Union Pacific. The command of the statute that 'competition shall be preserved as fully as possible' will also be carried out by such a consolidation, since of all of the large systems which extend from Chicago to the Missouri river and beyond, the North Western is the least competitive with the Union Pacific. The North Western is the only connection with the Union Pacific east of the Missouri which has pursued a consistent policy, by construction and service, of building up the traffic route through Council Bluffs and Omaha, and it is because of this policy, and not through favoritism, that the North Western enjoys the preponderance of the interchange at those points."

Mr. Gray did not favor the alternative plan which had been suggested, that the Chicago, Milwaukee & St. Paul be grouped with the Union Pacific. He said there is less interchange between those two roads at the Missouri and that they were in active competition on traffic to and from the Northwest, and also that both roads are comparatively weak in the Northwest.

As to allocating the Wabash lines west of the Mississippi to the Union Pacific system, Mr. Gray said that would involve the disruption of the Wabash system and that he had

no opinion to express on it, but that it would give the system a line to St. Louis in competition with the proposed line of the Santa Fe.

The conditions imposed by the commission in the Central Pacific case are satisfactory to both the Union Pacific and the Southern Pacific, Mr. Gray said, and if the two systems were to continue as now constituted the Union Pacific would have no objection to the permanent control of the Central Pacific by the Southern Pacific under those conditions and subject to the continuing power of the commission to enforce them. However, the Union Pacific feels that it would be greatly prejudiced by the inclusion in the Southern Pacific-Rock Island system of the lines of the Rock Island between Colorado Springs, Denver and Omaha. It has discussed the matter with the Southern Pacific and that company joined the Union Pacific in asking the commission to eliminate those lines as a condition precedent to the consolidation of the Southern Pacific and Rock Island. If the Colorado & Southern and Fort Worth & Denver City lines are to become an integral part of the Burlington, then, in order to preserve the proper balance, some southwestern line, probably the Kansas City Southern, should be aligned with the Union Pacific, Mr. Gray said, but as in his opinion either action would materially weaken the two southwestern systems, he suggested that both the Kansas City Southern and the Colorado & Southern are essential to a strong solvent system such as is contemplated in system No. 19, Chicago-Missouri Pacific. They would then connect at Kansas City and at Denver upon equal terms with both the Burlington and Union Pacific, while system No. 18, Frisco-M. K. & T.-Cotton Belt, would connect with the Burlington and Union Pacific at Kansas City, and with the latter at Junction City and Ellsworth, Kans.

Questioned as to why the North Western interchange with the Union Pacific at Omaha and Council Bluffs is so much greater than that of other lines, Mr. Gray said it was because of the Union Pacific's policy of neutrality, that it makes a rule of giving eastbound freight to its connections in the proportion that they give it westbound freight. The divisions are the same, he said, and the road in which the Union Pacific has the greatest investment is one of the smaller beneficiaries of the interchange. Also, the North Western is a great originating road and the St. Paul does not give the Union Pacific any business for the Northwest, because it has its own line.

#### System No. 17—Southern Pacific-Rock Island

L. J. Spence, director of traffic of the Southern Pacific system, said: "The Southern Pacific does not covet the property of any of its neighbors. The system, as heretofore constituted, efficiently accommodates the traffic within the section of the country in which it operates. It might appropriately absorb some lines within that territory, but viewed from a selfish standpoint we would prefer not to have the system extended into the territory beyond its present gateways. We realize, however, that a mere suggestion to be left alone would not be helpful to the commission. As we desire to be helpful we therefore approach the subject upon the assumption that there are to be a limited number of consolidated systems formulated by the commission."

Pointing out that all the component parts of the existing Southern Pacific system are included in the proposed Southern Pacific-Rock Island system Mr. Spence said it is essential that the S. P. rail lines east of El Paso and the steamship lines connecting therewith should be retained in one system, and that their existing union with the lines west of El Paso should be preserved as contemplated by the tentative plan. For all traffic handled by such unified lines there is the most acute competition between the system thereby created and other systems and this will be fully preserved by a continuation of such unity of operation and management. "The Southern Pacific in maintaining and



supporting these lines as units of its system is already fulfilling one of the avowed objects of the Transportation Act," Mr. Spence said.

"It is also essential," he continued, "that the Central Pacific lines should be retained in the Southern Pacific system, of which they are an integral and indispensable part. Unified operation of these lines is necessary to preserve the efficiency and economy of the service now rendered. Separation would mean the disruption of an operating organization and a system all parts of which are working as a harmonious unit and the substitution of two fragmentary systems to perform the service which for 50 years has been efficiently performed by a single system. Failure to include the Central Pacific lines would disregard their preponderant and complementary use and entirely subordinate that use to the alternative use that can be made of the Ogden route and the El Paso route for transcontinental traffic, which is a very limited and very minor part of the business of the Central Pacific lines and of the Southern Pacific system. The major use of the Central Pacific lines is for traffic moved exclusively between points in the Pacific states west of Ogden and El Paso.

"The objections of the Union Pacific to the control of the Central Pacific by the Southern Pacific have been removed to the satisfaction of the Union Pacific and all others primarily interested in the Ogden route by the conditions recently imposed by the commission. The Southern Pacific does not recognize or admit the necessity for the imposition of these conditions but does not oppose their continuance in connection with a consolidation whereby the Southern Pacific and Central Pacific lines are kept together. It joins with the Union Pacific in requesting that such conditions be continued in force as an obligation of such consolidated company created under the consolidation act, in order that the door of future controversy may be forever closed."

Taking up the various lines proposed to be included in the tentative plan for a Rock Island-Southern Pacific consolidation Mr. Spence said that the omission of the Nevada Northern would better satisfy its owners and would be satisfactory to both of its connections, the Southern Pacific and the Western Pacific. Unless the present Rock Island system, suitably supplemented and strengthened, can be made a separate southwestern system, the inclusion of the Rock Island in the same system as the Southern Pacific and the El Paso & Southwestern would create a logical consolidation, except that the Rock Island lines from Omaha to Denver and Colorado Springs would have no appropriate place and would perform no useful function in such a consolidated system. The Southern Pacific concurs with the Union Pacific in asking that they be eliminated.

Mr. Spence said a consolidation embracing the Southern Pacific and Rock Island in one system would obviously require the inclusion of the El Paso & Southwestern to connect them and that between Tucson and El Paso this would provide a convenient second track for through traffic that would be very useful. The Southern Pacific would prefer not to have such an unprofitable line as the San Antonio & Aransas Pass embraced in its system but it is guaranteeing the principal and interest of some of its bonds, and, Mr. Spence said, the only hope of offsetting the annual deficit would seem to be the operating economies and saving in overhead expenses which could be accomplished by its operation as a part of the Southern Pacific system. This saving he estimated at \$400,000 a year.

The Trinity & Brazos Valley, he said, would be a useless duplication of facilities if the Southern Pacific-Rock Island system and the Midland Valley does not appear to be essential to the Rock Island but no more appropriate disposition could be suggested than its inclusion in the Rock Island. He offered no objection to the inclusion of the Vicksburg, Shreveport & Pacific in the system but he repeated the objection made by President Gorman of the Rock Island at a

previous hearing to the inclusion of the Chicago, Peoria & St. Louis.

If the consolidation plan is promulgated by the commission, Mr. Spence said, the Southern Pacific system should include the Tucson, Cornelia & Gila Bend, the Texas-Mexican, the Houston & Brazos Valley, the Sugarland, the Texas Midland and the Franklin & Abbeville. He also called attention to the interruption of existing routes which would result from the proposed assignment to other groups of two connections of the Southern Pacific, the St. Louis Southwestern and the Fort Worth & Denver City-Colorado & Southern route. While not advocating the inclusion of the latter in the Southern Pacific-Rock Island system if existing routes and interchange relations can be otherwise maintained, he desired to point out the interruption of the existing status which would result from their inclusion in the Santa Fe system and suggested that this can be avoided by leaving the Fort Worth & Denver City and Colorado & Southern in the hands of their present owners.

#### System No. 18—Frisco-Katy-Cotton Belt

J. M. Kurn, president of the St. Louis-San Francisco, said that proposed system No. 18 "is not a bad line-up" but that since it was published the Frisco has applied to the commission for authority to purchase the stock of the International Great Northern, and that he was not sure of any benefits to be derived from the inclusion of the Trinity & Brazos Valley and the San Antonio, Uvalde & Gulf. Also he desired to go on record as not committing the Frisco to any plan as to which a satisfactory and mutually advantageous arrangement has not been made for the exchange of securities. Regarding a suggestion that the Memphis-Birmingham line be placed in a system with the Seaboard Air Line, Mr. Kurn said this would be practically a death blow to the Frisco system and he could see no advantage to the public in it. The absorption of the I.-G. N., he said, would be a great aid to the system as it would give a line to the gulf at Galveston and also a line to Mexico through Laredo. He approved the principle of the tentative plan of creating two southwestern systems distinct from the transcontinental systems, saying that the Frisco is not deeply concerned with transcontinental traffic but is concerned mainly with traffic between St. Louis, Kansas City and the Gulf and the Southeast and originates 65 per cent of its traffic. It is a question, he said, whether the system would not lose traffic by having its own line to Chicago (the Chicago & Alton) although it might make better service possible.

Daniel Upthegrove, president of the St. Louis Southwestern, objected to the proposed group as destructive of existing routes and channels of commerce and as one which would eliminate competition to a large extent. He said it would destroy existing routes at the southern end and destroy intensive competition at Texas common points. The Cotton Belt, he said, is largely a bridge line between St. Louis and Texas common points and Shreveport. He said that the transportation act forbids a merger that will destroy competition and that the consolidation of parallel and competing lines is expressly forbidden by the states through which the Cotton Belt operates. The system proposed, in his opinion, would be weak and not self-supporting and would not be able to exist on the same level of rates as other Southwestern systems having transcontinental connections. Existing routes at the north end also would be destroyed, Mr. Upthegrove said, by forcing movement through Chicago, as the preponderance of the Cotton Belt traffic is eastbound and not northbound and Chicago is not an important market for the eastern part of the Southwest. The logical affiliation of a St. Louis terminal line in his opinion is with lines running east from Memphis to St. Louis. The commission's plan, however, he said, should be confined to a clear and comprehensive statement of principles, and specific and definite mergers should not be prescribed because of the impossibility

of forecasting future economic developments. If the commission should decide to promulgate a definite plan the Cotton Belt endorses the suggestion that the Southern Pacific be left an open transcontinental route serving freely all southwestern systems and that a southwestern system be built around the Rock Island and the Cotton Belt. If the commission decides to continue its proposal for a Southern Pacific-Rock Island merger it endorses the suggestion that the Cotton Belt be made a part either of that system or of the Santa Fe system.

C. Haile, chief traffic officer of the Missouri, Kansas & Texas, said that the subject had been approached without antagonism and with a desire to be helpful in any plan that may be found feasible and desirable but he did not believe that the inclusion of the Frisco and the M. K. & T. in one system represents a proper combination as it would eliminate competition to a large extent in the territory served. This competition begins, he said, at St. Louis and Kansas City and prevails throughout the territory. He proposed an alternative plan for grouping the Southwestern roads.

S. G. Lutz, chief traffic officer of the Chicago & Alton, said that this line is located strategically as it is, reaching Chicago, Peoria, St. Louis and Kansas City, and it has a very dense traffic. Also the receivership has permitted improvements that will permit it to handle an increased traffic with more economical operation so that it is the view of the receiver that it can be made to pay its way on any rate level that will support the roads as a whole in its territory. It is not suggesting a combination with any road but if there is to be a consolidation it should properly be allied with one of the proposed southwestern Gulf systems. If included in the Missouri Pacific system there might be worked out a more favorable route between Chicago and Kansas City with only a little new construction.

#### System No. 19—Chicago-Missouri Pacific

W. H. Lyford, vice-president of the Chicago & Eastern Illinois, asked that the company be excused from filing the general statistics asked by the commission until it has had time to "make a year of history under normal conditions." He pointed out that it had been in receivership for ten years and that shortly after the new company began operation there was a coal strike and a shop strike, so that it "only got down to earth about October 1." Mr. Lyford said, however, that while the company is in full accord with the views of Congress and is willing to go along with a plan of consolidation, it does not approve of either the Ripley plan or the commission's tentative plan. It does not want to be consolidated with the Missouri Pacific because it had ten years of experience with one southwestern line, the Frisco, "which was a failure to both," and believes it should not again be grouped with a southwestern line. Some system east of the Mississippi river would be preferable and it believes it is better to have access to three lines at Thebes than to be tied down to any one.

B. F. Bush, president of the Missouri Pacific, expressed general concurrence with the suggestions of the commission for System No. 19, with certain modifications, including the assignment of the Denver & Rio Grande Western and the Western Pacific to that group. He also opposed the acquisition of the International-Great Northern by the Frisco.

"All of the transcontinental groups which the commission has proposed have Chicago as their principal eastern terminus," Mr. Bush said. "Should the Denver & Rio Grande Western and Western Pacific be grouped with the Missouri Pacific, it would provide a transcontinental route with St. Louis as its principal eastern terminus. This would be a very desirable arrangement and one which would fit in nicely with the general grouping plan. The principal railroad systems operating east of the Mississippi river reach both Chicago and St. Louis. These lines and their connections serve

practically all of the territory east of Chicago and St. Louis. There is no logical reason why the business should be forced through the Chicago gateway to the exclusion of other gateways.

"From the tentative grouping made by the commission, as well as the one suggested by Professor Ripley, it appears that the Chicago-Missouri Pacific group is treated entirely as a Southwestern and Gulf group, and reflects an apparent hesitancy to afford us a western connection. Your attention is called to the fact that, should you concede to us the western connections above advocated, then our group would be comparable with those suggested for the Santa Fe and Southern Pacific-Rock Island, each of which is strong transcontinentally, serves the Southwestern territory and also has a Gulf port.

"We submit that the grouping of the Denver & Rio Grande Western and Western Pacific with the Santa Fe system is not to the best interest of those properties, and certainly it would be very detrimental to the interests of the Missouri Pacific.

"Competition between transcontinental lines has always been exceedingly keen, and is now intensified by the severe competition of steamship lines working through the Panama Canal. The Santa Fe system has its own rails from Chicago and Kansas City to San Francisco and other California points, with a shorter mileage and more favorable grades than via Pueblo, Denver & Rio Grande Western and Western Pacific. It could not favor economically the latter route, consequently there would be an elimination of competition.

"It will be apparent that the grouping of the Santa Fe with the Denver & Rio Grande Western and Western Pacific will practically eliminate one transcontinental line, as the Santa Fe cannot afford to use that route for California traffic, so California competition will be reduced one-quarter, a contingency not contemplated by the act.

"Competition will be preserved if the Denver & Rio Grande Western and Western Pacific are grouped with the Missouri Pacific because this will preserve a long-established route to and from California and 'existing routes and channels of trade, and commerce will be maintained' by this grouping.

"At a previous hearing, the presidents of the Chicago, Rock Island & Pacific and Chicago, Burlington & Quincy objected to the grouping of the Denver & Rio Grande Western with the Santa Fe, and each stated if the Denver is to be grouped with any of its present connections, the Missouri Pacific would seem to be the most logical, and in making these statements they spoke from experience, since when the Missouri Pacific controlled the Denver, though it worked its business preferentially with the Missouri Pacific, it continued its friendly relations with both the Rock Island and Burlington. There is no reason why such friendly relations should not continue if the Denver and Western Pacific lines are placed in the Chicago-Missouri Pacific group.

"As to Southwestern traffic both the commission and Professor Ripley have provided for the backbone of this group the three lines which in the past have been known as the 'Gould Lines,' namely: The St. Louis, Iron Mountain & Southern (now a part of the Missouri Pacific), the Texas & Pacific and the International-Great Northern. These three lines have been closely allied and operated as a through system ever since their completion and in fact were the pioneer system between the Mississippi river and the Southwest.

"Taking into account the underlying principles for the grouping of these roads, namely, 'that competition shall be preserved as fully as possible and wherever practicable the existing routes and channels of trade and commerce shall be maintained,' there would seem to be no logical grounds upon which these three lines could be segregated in providing a Southwestern group.

"If it were not for these groupings, the Missouri Pacific



could perhaps perfect other traffic arrangements which would enable us to reach the port of Galveston and most of the important territory in South Texas, but with the groupings as proposed by the commission, such other lines as would be necessary to effect an arrangement of this kind have been tentatively assigned to other groups, so that the Missouri Pacific would be left under such circumstances with no line to the very important port of Galveston and could not reach or form a competing system to much of South Texas, where it now provides the shortest and most economical route. It would also be left without any short-line connecting link as between the balance of its system and the Gulf Coast Lines which the commission has assigned to this group."

Professor Ripley said that the historical connection of the former Gould roads naturally carried some weight but questioned whether the system would have sufficient financial strength to carry the burden of the D. & R. G. W. Mr. Bush replied that without it the Missouri Pacific would be greatly weakened and that it was hoped the D. & R. G. W. would be reorganized on a basis so that it can carry itself.

#### Purpose of Consolidation Act Called Socialistic

A vigorous criticism of the entire consolidation plan was made in a statement by the executive committee of the Kansas City Southern, read by F. H. Moore, general solicitor. Mr. Moore said that L. F. Loree, chairman, had expected to present it but that he was ill. The commission and Prof. Ripley requested that he appear later for questioning. The statement first pointed out that quite a different mental impression of the present railroad system is created if it be considered that the 188 Class I roads are now grouped into only 89 actual separate properties in so far as actual control is concerned, and continued in part as follows: "The purpose of the further consolidation of these roads into about 19 systems, as indicated in the act, is to insure the solvent operation of the weak lines under a group system of rates and fares by a skillful arbitrary uniting of the same with their stronger neighbors, making them a charge on the latter. This purpose is so socialistic in its tendency; so contrary to the genius of our institutions; so violative of the protection afforded by the Constitution; that it is not our purpose to discuss the matter from that point of view, believing that it can be but a passing phase of the political embarrassment growing out of the war.

"The systems suggested by the commission sufficiently indicate in themselves the impractical and unworkable character of the proposed groupings. The contrast between the proposed Union Pacific System with its 24,861 miles of road, and the proposed Norfolk & Western System with its 2,805 miles of road; between the proposed Pennsylvania System with its gross earnings per mile of about \$34,000, and the proposed Pere Marquette System with its gross earnings per mile of about \$8,000; and similar abnormalities, sufficiently condemn it.

"It is frequently urged in support of a consolidation that the general expenses of supervision are thereby greatly reduced, and consequent economies effected. It is true that in the group of systems of more than 10,000 miles the salaries of general officers, clerks and attendants, absorb no more than 1.83 per cent of the gross operating revenues, while these expenses in the other groups are somewhat larger. Were all the lines to effect such an economy, there would be a gross saving of \$8,960,709 annually. But certainly no such sum, so insignificant in its relation to the five and one-half billions of gross income, would justify the changes contemplated, did they entail no more serious consequences than a rearrangement of control. But a study of the figures will show that this apparent economy is a mere superficial coincidence. The difference in this item of expense of 1.41 per cent on the Atchison, Topeka & Santa Fe Railway, the lowest, and of 2.26 per cent on the Chicago, Milwaukee & St. Paul

Railway, the highest, of the systems operating over 10,000 miles, is .85 per cent and is itself greater than the difference between the average of the systems of over 10,000 miles, 1.83 per cent, and the average of the systems of less than 1,000 miles, 2.38 per cent, which is no more than .55 per cent. A study of this item in all the lines enumerated utterly discredits the assumption that mere size will ensure economy. We must look elsewhere for an explanation, and need go no further now than to suggest that what the railroads of the country need at the present time in their service is not less but more brains. The roads, in our judgment, are generally understaffed and the staff underpaid. The work of management has constantly increased in volume and intensity, has become less and less attractive, and the larger rewards of industry are added inducement to seek those fields for employment rather than the work of transportation.

"It is a matter of profound regret that, in a scheme so gigantic in its size, so revolutionary in its method, containing possibilities of so great losses and even disaster, the commission has not seen its way clear to lay down some general principles that would guide the judgment of those whose interests are affected, in a study of the problem, in its effect on the proposed traffic regions, and upon the individual carriers.

"Let us first say very frankly that we believe, as we urged upon the commission in our argument in the hearings in June, 1920, that a great error was committed in not setting off the Southwest as a separate freight rate region. These southwestern lines really constitute a distinct group, with its own peculiar needs.

"An initial error, if persisted in, leads on to the commission of others, and the effect of this initial error in marking out the traffic regions is reflected in the grouping of lines here under consideration. If a traffic region is expected to provide for the support and development of the lines serving it, then lines serving other regions and having their principal interest therein, should not be permitted to intrude into it. The proposed grouping violates this condition.

"There is in the region a total mileage of 34,861. A careful study should be made of the several lines, parts of lines between terminals, branches, etc., with a view to determining what mileage has no economic justification. For the purpose of illustration, we assume that 4,861 miles will be found to fall within this category. For the most part, they should be taken up and scrapped. For the small remainder, if no system is willing to assume the speculative risk of ownership, and there is believed to be a necessity for their operation, they should be subsidized by the state and the losses made good out of taxes. What the state wants and takes the state should pay for; the Constitution says it must and it is the custom among honest men.

"Some agreement should be come to as to the size of a system that may be adequately administered by one organization, that will conveniently serve the communities in which it is located, and that is small enough to maintain a personal relation between its responsible officers and the communities, corporations and individuals with whom it is in constant touch. We have assumed a limitation of roughly 5,000 miles, largely upon the belief that the general officers should personally go over their entire line at least twice each year, allowing proper time for getting in touch with operating, commercial and other matters requiring personal attention in the various localities. This would contemplate, in the Southwestern Region, two east and west lines, two north and south lines, one generally east of the Ozarks and one west of the Ozarks, and two lines running generally southeast and northeast.

"There should be a careful study of the traffic as now moving upon all mileage, with a view to determining its rate of growth, direction, character, etc., and a study of the phys-

ical characteristics of the region and the physical and operating characteristics of the lines. This last has to some extent been covered by Professor Ripley, but should be carried much farther. Especially should the main traffic routes be clearly indicated and the points where the movement thins out to the minimum, and the divisions and groupings should be skillfully adapted to those governing conditions.

"But the beneficial results of consolidations such as are here under consideration are purely speculative, speculative to the point of the fantastic, making the venture hazardous in the extreme, and one well to be avoided by the prudent and responsible. It is the claim of the Kansas City Southern Railway Company that it is amply able to adequately serve the territory in which it is located; that no complaint is made of, and that there is no reflection upon its service or provision of facilities for service demanded or anticipated in the immediate future; that it is its right that it be left alone to discharge the duties undertaken through its charter and had in mind when its organization was perfected and the capital raised for its construction and working; and it makes this declaration of its belief that the district for whose business it competes and the interest of its security holders will be best served if it be left alone to work out its destiny in the light of its experience in its own way."

J. L. Lancaster, receiver, and T. J. Freeman, general counsel, appeared for the Texas & Pacific, and while approving in general the proposed system No. 19, they said that it would be destroyed financially, competitively and as a trade channel if the International-Great Northern were taken out of the system and allocated to the Frisco. Mr. Freeman outlined the history of the Gould southwestern lines, including the Iron Mountain, Texas & Pacific and I. & G. N., saying that these roads had established through routes and had always been active competitors of the lines entering Texas through the northern gateways and particularly of the M. K. & T. The I. & G. N. is a sine qua non of the system, he said, and to turn it over to a system including the M. K. & T. "might do from a biblical standpoint but would never do from a business standpoint."

The proposed consolidation of lines in the Northwest were then taken up on Wednesday and the Northern Pacific and Great Northern put on witnesses to give rebuttal testimony to that offered at a previous hearing.

THE MARCONI COMPANY announces that a wireless station is to be erected at Vancouver, B. C., to cost \$2,000,000. It will exceed in power any Marconi station now in existence, and will give direct service to London, England, and Sydney, Australia.

## Ann Arbor Car Ferry No. 3

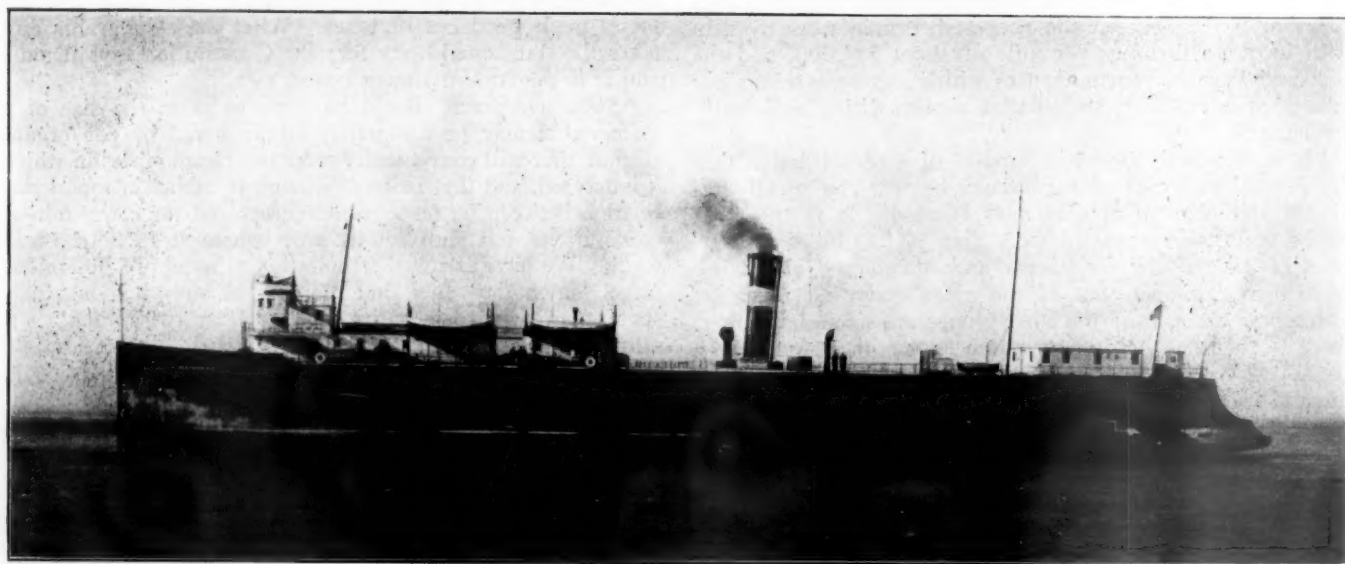
THE ANN ARBOR RAILROAD initiated the first lake car ferry movement known to transportation where cars were ferried across large bodies of water. The idea was conceived by the road in 1890, and led to the construction of two wooden car ferries Nos. 1 and 2 which were placed in commission in November and December, 1892, on Lake Michigan. These vessels had a carrying capacity of approximately 24 freight cars, the cars being generally about 30 ft. in length. The first steel car ferry, now known as the No. 3, was constructed and placed in operation in 1898, and in 1906 the No. 4 was put into service, the two wooden car ferries then being retired. In 1910 ferry No. 5 was built, and during 1917 ferry No. 6 was placed in commission. These vessels are so constructed and powered as to be able to navigate without difficulty during the winter as well as the summer months.

While the Ann Arbor established the first car ferry system on Lake Michigan in 1892, other roads have since followed with service on several of the Great Lakes. Other points where long car ferry systems are now operated are on the Trans-Siberian; between Germany and Sweden; Cape Charles, Md., to Norfolk, Va., and by the Flagler system between Key West and Havana.

Ann Arbor car ferry No. 3, operating between Frankfort, Michigan, and Manitowoc, Wisconsin, recently left the plant of the Manitowoc Shipbuilding Corporation, where the vessel received extensive alterations. The ship was placed in the floating drydock, cut in two, and lengthened 48 ft. giving it an increase in car carrying capacity of about 33 per cent. The keel length of the vessel is now 307 ft. New quarters for the crew were fitted on the upper deck in a new deck house, and increased passenger capacity was provided.

During the lengthening operation, the old propelling machinery, consisting of two horizontal compound engines, and two natural draft Scotch boilers, were removed, and an entire new installation of modern propelling machinery was made. This consists of two triple expansion engines and two Scotch boilers 13 ft. in diameter and 11 ft. 6 in. long, carrying 180 lb. steam pressure and operating under forced draft. The engines are of the vertical, three-cylinder, direct-acting type, developing 700 hp. at 110 revolutions per minute and direct-connected to cast steel propellers. As is usual on Great Lakes service, jet condensers are employed.

On her first trip after lengthening, the Ann Arbor No. 3 made the trip from Manitowoc to Frankfort, with 26 cars aboard, at a speed exceeding 13 miles per hour.



Lengthened Car Ferry No. 3 of the Ann Arbor Railroad



# General News Department

Hon. F. B. Carvell, chief railway commissioner of Canada, and Floyd M. Parsons, technical writer, of New York City, are to speak at the annual dinner of the American Railway Engineering Association at Congress Hotel, Chicago, on Wednesday evening, March 14.

A prize of \$100 will be awarded by the Northern Pacific for the best amateur picture of a child or children out of doors, in the territory of this road. The pictures wanted are those showing children enjoying the outdoor sports of the Northwest and will be used in advertising the Northwest. Pictures will be received until July 1.

A trip to the top of Pike's Peak is contemplated in connection with the convention of the Air Brakemen's Association at Denver, Colo., on May 1-4, provided as many as 100 persons desire to go up. The Manitou & Pike's Peak Railroad, the "Cog route," opens for business usually on May 15 but if the requisite number can be secured at \$4 per capita, the road will be opened on May 5.

The Dixie Flyer, northbound, second section, was derailed on the Nashville, Chattanooga & St. Louis, near Calhoun, Ga., on the afternoon of February 26, while running at full speed; and one passenger and one fireman were killed. The injured persons numbered 14, none of the injuries being classed as serious. The train consisted of two locomotives and 14 sleeping cars. Eight of the cars were ditched.

The engineering building of the Montana State College at Bozeman, to be finished next June, will be dedicated to W. Milnor Roberts, pioneer chief engineer of the Northern Pacific, who decided the route from Lake Superior to Puget Sound. The railway company will place a memorial tablet in the building describing Mr. Roberts' contribution to the development of the state of Montana and paying tribute to his genius.

## Canadian Minister of Labor Attacked

At a convention of the Ontario Labor Party at London, Ont., on February 24, Walter Rollo, minister of labor, was attacked because it was alleged that he had failed to take action on a complaint lodged to the effect that the government had sent locomotives of the Temiskaming & Northern Ontario to outside shops in order to avoid the rates of pay prevalent in the company's own shops at North Bay.

## March Meeting of Central Railway Club

At the next regular meeting of the Central Railway Club to be held at the Hotel Iroquois, Buffalo, N. Y., at 8 p. m. on March 8, F. L. Dodgson, consulting engineer of the General Railway Signal Company, Rochester, N. Y., will speak on, "Fundamentals of Train Control with Special Reference to Railway Operating Conditions." Mr. Dodgson will illustrate his talk with lantern slides.

## La Follette Wants Monthly Reports From I. C. C.

Monthly reports to Congress and, when Congress is not in session, to the President, on the condition of railroad equipment as revealed by reports of the carriers and inspections by the commission's agents are requested of the Interstate Commerce Commission in a resolution proposed by Senator La Follette and adopted by the Senate on February 26. The reports, which are to be made public, are also to include the number of persons killed or injured upon the railroads "and any other available data bearing upon the physical condition of the railroads, and of railroad equipment, together with a statement of what action, if any, has been taken by the commission within its statutory power to remedy the situation."

## Symposium on Locomotive Terminal Design

The Western Society of Engineers, Chicago, will present a symposium on locomotive terminal design at its rooms in the Monadnock building on Tuesday evening, March 13. L. K. Sillcox, general superintendent of motive power of the Chicago, Milwaukee & St. Paul, will discuss the subject from the standpoint of the mechanical department; R. N. Begien, general manager of the Baltimore & Ohio, Western lines, will outline the requirements of the operating department; and W. T. Krausch, engineer of buildings, of the Chicago, Burlington & Quincy, will describe the manner in which the engineering department meets these requirements.

## Labor Board Increases Pay of Freight Handlers

The hourly rates of pay of railroad freight handlers and express employees were increased two cents an hour on March 1 under the terms of a decision handed down by the Railroad Labor Board on that date. The Board's ruling was one of the series resulting from hearings involving wages and working conditions held immediately after the collapse of the shopmen's strike. Clerical employees, including freight handlers and express workers, are also given time and one-half after eight hours of consecutive service, and in addition there is a new rule regarding Sunday and holiday work similar to that recently given to the signal department employees. Both the overtime and the Sunday and holiday rules correspond with similar rules noticed in the *Railway Age* of February 3, page 339. The request of the clerical forces for an increase in wages was denied by the Labor Board.

## Railway Returns for December

The Interstate Commerce Commission's summary of railway revenues and expenses for December and the year 1922 is as follows:

Item	December		Twelve months	
	1922	1921	1922	1921
Average number of miles operated...	235,081.44	235,234.82	235,233.58	234,969.48
Revenues:				
Freight .....	\$364,105,822	\$288,665,736	\$4,007,014,655	\$3,927,934,028
Passenger .....	198,464,190	88,722,702	1,076,043,334	1,154,058,118
Mail .....	9,352,146	10,042,537	90,975,536	95,919,962
Express .....	15,588,558	12,121,727	143,332,536	104,674,523
All other transportation .....	15,220,686	14,577,499	177,500,285	165,304,274
Incidental .....	10,058,985	9,694,572	114,418,650	118,466,163
Joint facility—Cr. ....	993,261	1,821,114	10,199,524	8,765,156
Joint facility—Dr. ....	207,851	370,428	2,231,864	1,969,091
Railway operating revenues .....	513,575,797	425,275,459	5,617,252,656	5,573,153,133
Expenses:				
Maintenance of way and structures .....	57,005,694	49,212,451	735,700,633	764,662,651
Maintenance of equipment .....	116,810,589	93,549,456	1,259,664,875	1,256,338,463
Traffic .....	7,576,309	7,171,626	86,694,504	84,406,709
Transportation .....	205,780,119	185,366,029	2,174,932,887	2,288,454,499
Miscellaneous operations .....	4,136,105	3,701,117	47,975,415	48,915,283
General .....	14,483,135	13,958,126	157,908,937	167,995,310
Transportation for investment—Cr. ....	893,796	1,508,725	7,227,035	6,966,008
Railway operating expenses .....	404,898,155	351,450,080	4,455,650,216	4,603,806,907
Net revenue from railway operations .....	108,677,642	73,825,379	1,161,602,440	969,346,226
Railway tax accruals .....	23,033,645	19,257,231	304,885,158	279,715,492
Uncollectible railway revenues .....	275,098	699,563	1,496,581	1,919,884
Railway operating income .....	85,368,899	53,868,585	855,220,701	687,710,850
Equipment rents—Dr. balance .....	4,644,494	3,235,253	59,722,604	53,137,317
Joint facility rent—Dr. balance .....	1,569,438	976,705	18,832,137	18,627,919
Net railway operating income .....	79,154,967	49,656,627	776,665,960	615,945,614
Ratio of expenses to revenues (per cent) .....	78.84	82.64	79.32	82.61

<sup>1</sup>Includes \$3,003,668, sleeping and parlor car surcharge.

<sup>2</sup>Includes \$2,568,077, sleeping and parlor car surcharge.

<sup>3</sup>Includes \$32,891,124, sleeping and parlor car surcharge.

<sup>4</sup>Includes \$32,605,082, sleeping and parlor car surcharge.

## Operating Statistics of Large Steam Roads—Selected Items for the Month of December, 1922

Region, road and year	Average miles of road operated	Train-miles	FREIGHT SERVICE				Ton-miles (thousands)		Average number of locomotives on line daily					
			Locomotive-miles		Car-miles		Gross. Excluding locomotive and tender	Net. Revenue and non-revenue	Service-able	Un-service-able	Per cent un-service-able	Stored		
			Principal and helper	Light	Loaded (thousands)	Per cent loaded								
New England Region:														
Boston & Albany.....	1922	394	316,909	339,326	35,748	5,414	69.1	287,364	122,089	115	27	18.9	...	
	1921	394	254,179	274,171	31,594	4,456	65.1	233,548	90,343	117	27	18.4	...	
Boston & Maine.....	1922	2,455	623,306	693,056	62,863	12,511	73.1	631,910	270,605	313	132	29.7	2	
	1921	2,455	548,875	608,503	49,429	10,813	66.4	568,035	222,275	327	127	28.0	43	
N. Y., N. H. & H.....	1922	1,974	451,063	485,619	32,451	10,311	72.6	521,081	228,913	284	96	25.3	...	
	1921	1,977	436,234	474,690	26,418	10,292	67.0	521,137	210,834	298	83	21.7	33	
Great Lakes Region:														
Delaware & Hudson.....	1922	886	363,601	515,808	40,685	8,832	65.0	583,747	299,037	251	47	15.8	51	
	1921	887	362,682	473,145	36,023	8,522	59.7	576,598	280,162	266	42	13.6	99	
Del., Lack. & Western.....	1922	994	506,843	617,963	110,390	13,836	64.9	823,381	385,993	280	103	26.8	3	
	1921	994	511,233	626,616	121,196	14,657	66.4	793,638	349,771	299	63	17.4	24	
Erie (inc. Chic. & Erie).....	1922	2,309	1,167,798	1,338,074	47,662	38,580	70.7	2,276,992	1,117,972	521	240	31.5	...	
	1921	2,259	885,984	1,003,448	57,321	26,046	63.3	1,565,818	695,175	583	182	23.8	94	
Lehigh Valley.....	1922	1,317	477,638	542,949	63,280	12,537	71.3	752,633	390,797	301	252	45.5	1	
	1921	1,316	564,223	617,569	63,241	14,398	61.4	890,016	404,520	424	121	22.1	122	
Michigan Central.....	1922	1,827	612,197	630,661	26,813	18,326	67.0	1,001,069	426,047	291	105	26.5	13	
	1921	1,827	471,645	478,763	18,871	12,798	61.3	700,503	261,959	316	95	23.1	92	
New York Central.....	1922	6,486	2,621,089	3,033,051	235,522	84,418	62.5	5,230,482	2,416,357	1,159	558	32.5	4	
	1921	6,466	1,837,095	2,041,245	145,398	58,259	62.3	3,415,531	1,461,140	1,160	559	32.5	323	
N. Y., Chic. & St. L.....	1922	1,225	539,635	547,634	4,119	14,101	69.3	752,550	324,275	158	71	31.1	8	
	1921	1,225	448,139	452,440	1,745	12,085	63.5	644,830	251,359	189	64	25.2	59	
Pere Marquette.....	1922	2,182	365,064	375,932	6,832	9,014	72.8	484,164	237,233	158	54	25.5	...	
	1921	2,191	316,665	323,374	6,390	6,927	60.8	411,470	184,933	154	55	26.1	10	
Pitts. & Lake Erie.....	1922	231	174,141	181,061	1,395	5,758	63.5	425,129	248,924	60	14	19.1	...	
	1921	228	84,110	88,558	1,278	2,921	64.4	188,295	100,152	62	16	20.9	15	
Wabash.....	1922	2,418	545,737	582,552	8,122	15,980	76.8	811,494	369,295	247	92	27.1	...	
	1921	2,418	569,159	596,887	5,977	14,399	65.5	795,361	330,308	279	64	18.5	33	
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio.....	1922	5,235	2,119,987	2,458,578	146,884	55,876	66.5	3,444,458	1,754,996	1,006	290	22.4	26	
	1921	5,185	1,595,638	1,679,742	127,242	36,933	60.8	2,344,405	1,112,369	1,016	367	26.5	269	
Central R. R. of N. J.....	1922	692	308,984	336,490	39,732	6,512	61.1	398,425	217,424	200	71	26.2	...	
	1921	679	276,838	307,914	38,607	5,532	58.6	369,752	179,013	213	44	17.3	9	
Chicago & Eastern Ill.....	1922	945	266,855	276,910	4,579	6,420	64.2	406,045	211,355	103	73	44.7	2	
	1921	1,129	214,180	215,288	3,251	4,758	61.7	290,651	143,196	120	52	30.2	41	
Clev., Cin., Chic. & St. L.....	1922	2,377	732,052	761,736	6,826	21,416	68.2	1,302,795	653,927	288	147	33.8	...	
	1921	2,387	605,479	634,358	2,615	15,721	56.4	1,002,159	433,594	323	125	28.0	66	
Elgin, Joliet & Eastern.....	1922	459	143,648	160,596	11,707	4,108	65.6	323,516	178,038	79	19	19.4	...	
	1921	459	97,854	109,078	7,906	2,721	62.9	213,522	113,717	99	9	8.0	29	
Long Island.....	1922	393	47,706	61,757	9,424	595	60.3	35,614	14,372	41	13	23.9	...	
	1921	395	41,451	45,837	8,304	467	58.9	26,503	9,938	40	8	17.5	1	
Pennsylvania System.....	1922	10,902	4,624,583	5,142,686	455,958	114,714	65.2	7,611,323	3,887,556	2,458	818	25.0	...	
	1921	10,876	4,024,179	4,370,543	325,821	95,670	61.4	6,427,645	3,076,759	2,547	948	27.1	636	
Philadelphia & Reading.....	1922	1,117	776,656	890,740	110,380	18,913	66.8	1,254,159	679,576	337	78	18.7	8	
	1921	1,119	542,251	603,259	71,888	11,916	58.5	830,201	418,766	375	68	15.4	157	
Pocomontas Region:														
Chesapeake & Ohio.....	1922	2,551	792,299	869,217	18,241	24,008	65.1	1,756,956	893,734	394	123	23.8	4	
	1921	2,548	622,469	685,709	18,801	16,135	55.1	1,248,387	653,243	465	95	16.9	133	
Norfolk & Western.....	1922	2,228	787,884	1,012,656	39,559	19,535	61.8	1,529,053	838,363	534	165	23.6	35	
	1921	2,222	641,109	779,966	31,452	16,050	59.1	1,164,909	611,263	593	108	15.4	210	
Southern Region:														
Atlantic Coast Line.....	1922	4,860	754,260	757,922	13,249	17,515	62.9	935,123	366,871	292	90	23.5	...	
	1921	4,918	635,531	640,805	11,354	14,050	60.0	770,221	261,053	303	109	26.4	32	
Central of Georgia.....	1922	1,907	275,258	279,285	5,065	5,525	72.4	293,249	137,431	113	15	11.4	...	
	1921	1,899	189,086	190,362	3,426	3,993	70.7	195,883	82,526	112	23	17.0	16	
I. C. (inc. Y. & M. V.).....	1922	6,135	2,092,216	2,107,999	42,867	54,963	67.0	3,373,131	1,621,033	719	97	11.9	4	
	1921	6,151	1,560,994	1,567,357	33,984	38,837	60.8	2,491,578	1,119,413	741	93	11.2	12	
Louisville & Nashville.....	1922	5,022	1,579,104	1,700,794	61,513	27,339	64.5	1,720,042	848,023	571	141	19.8	...	
	1921	5,021	1,272,393	1,336,566	44,607	20,913	59.7	1,330,362	609,008	568	94	14.1	74	
Seaboard Air Line.....	1922	3,550	534,376	546,831	10,157	11,155	66.1	620,002	259,394	191	81	29.7	...	
	1921	3,537	389,139	395,778	6,508	8,451	68.2	432,098	168,736	175	81	31.8	...	
Southern Ry.....	1922	6,942	1,569,762	1,616,079	43,261	33,455	68.8	1,812,715	807,037	849	200	19.1	1	
	1921	6,942	1,152,759	1,175,434	29,531	24,592	65.3	1,289,842	511,503	871	243	21.8	33	
Northwestern Region:														
Chic. & Northwestern.....	1922	8,386	1,708,213	1,759,949	27,754	33,595	63.0	1,995,431	894,450	785	269	25.5	...	
	1921	8,378	1,333,729	1,361,832	18,518	26,268	62.3	1,513,174	677,804	808	239	22.8	110	
Chic., Milw. & St. Paul.....	1922	11,022	1,870,184	1,930,676	78,626	43,422	65.2	2,542,419	1,197,987	851	212	20.0	12	
	1921	11,027	1,363,980	1,399,779	59,455	29,560	62.0	1,695,672	746,736	850	227	21.0	151	
Chic., S. P., Minn. & Om.....	1922	1,726	331,129	350,434	15,409	5,538	64.6	319,531	136,048	149	60	28.8	3	
	1921	1,726	271,962	282,203	12,193	4,592	68.2	243,538	100,684	147	67	31.4	38	
Great Northern.....	1922	8,256	1,015,609	1,052,674	55,059	23,082	65.4	1,385,959	658,936	544	218	28.7	8	
	1921	8,162	727,208	751,083	26,582	17,020	69.0	966,985	451,802	615	181	22.7	195	
M., St. P. & S. Ste. M.....	1922	4,352	668,880	681,100	12,025	13,095	66.8	722,670	349,173	283	66	19.0	2	
	1921	4,359	400,264	426,569	7,267	8,147	70.3	406,749	182,477	293	58	16.6	27	
Northern Pacific.....	1922	6,389	1,017,180	1,065,275	59,044	22,656	62.0	1,404,438	639,935	565	163	22.4	27	
	1921	6,419	686,744	714,103	43,559	17,516	68.4	993,059	454,834	556	157	22.0	87	
Oreg.-Wash. R. R. & Nav.....	1922	2,143	230,086	259,573	39,123	5,011	69.0	293,415	137,467	127	39	23.7	1	
	1921	2,150	207,001	231,957	27,988	4,588	68.5	267,815	125,184	128	34	21.0	4	
Central Western Region:														
Atch., Top. & Santa Fe.....	1922	9,807	1,936,027	2,024,175	94,346	49,448	63.9	2,853,716	1,088,167	721	222	23.5	14	
	1921	9,805	1,338											



Compared with December, 1921, for Roads with Annual Operating Revenues above \$25,000,000.

## FREIGHT SERVICE

Region, road and year	Average number of freight cars on line daily			Per cent un-service-able	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotive and tender	Passenger service		
	Home	Foreign	Total									Train-miles	Passenger-car-miles	
New England Region:														
Boston & Albany.....1922	1,714	8,236	9,950	3.2	.....	907	385	22.6	396	25.4	9,998	236	315,852	2,066,205
.....1921	3,574	4,489	8,063	6.8	1,208	919	355	20.3	361	27.4	7,398	246	318,164	2,099,721
Boston & Maine.....1922	12,441	24,222	36,663	11.5	.....	1,014	434	21.6	238	15.1	3,555	211	823,234	4,496,593
.....1921	16,923	13,458	30,381	19.7	585	1,035	405	20.6	236	17.3	2,920	172	822,864	4,538,145
N. Y., N. H. & H.....1922	16,421	32,359	48,780	17.4	.....	1,155	507	22.2	151	9.4	3,740	224	1,018,827	6,568,026
.....1921	24,144	15,011	39,155	22.0	3,031	1,195	483	20.5	174	12.7	3,441	185	1,048,754	6,517,584
Great Lakes Region:														
Delaware & Hudson.....1922	8,303	9,620	17,923	7.0	.....	1,605	822	33.9	538	24.5	10,883	240	192,485	1,013,526
.....1921	10,075	6,132	16,207	8.7	607	1,590	772	32.9	558	28.4	10,189	207	193,600	949,942
Del., Lack. & Western.....1922	12,832	11,612	24,444	5.3	30	1,625	762	27.9	509	28.1	12,526	246	486,217	3,522,667
.....1921	18,391	7,639	26,030	11.3	.....	1,552	684	23.9	433	27.4	11,350	210	504,281	3,612,686
Erie (inc. Chic. & Erie).....1922	22,162	37,116	59,278	9.5	.....	1,950	957	29.0	608	29.7	15,616	166	581,417	4,284,962
.....1921	46,309	16,069	56,378	20.6	8,888	1,767	785	26.7	398	23.5	9,928	169	685,831	4,866,944
Lehigh Valley.....1922	22,712	19,791	42,503	5.4	.....	1,576	818	31.2	297	13.3	9,573	230	349,692	2,773,889
.....1921	31,046	8,534	39,580	13.1	3,827	1,577	717	28.1	330	19.1	9,913	171	317,773	2,388,424
Michigan Central.....1922	7,478	19,390	26,868	7.8	.....	1,635	696	23.2	512	32.9	7,524	149	590,610	5,299,885
.....1921	21,148	12,840	33,988	16.8	4,331	1,485	555	20.5	249	19.8	4,626	144	595,024	5,259,953
New York Central.....1922	55,827	105,783	161,610	10.4	.....	1,996	922	28.6	482	27.0	12,018	149	2,619,509	20,526,647
.....1921	97,166	49,549	146,715	20.3	28,086	1,859	795	25.1	321	20.6	7,290	140	2,537,891	19,598,656
N. Y., Chic. & St. L.....1922	3,025	13,117	16,142	10.2	.....	1,395	601	23.0	648	40.6	8,536	162	154,252	811,293
.....1921	8,115	6,935	15,050	12.3	3,191	1,439	561	20.8	539	40.8	6,616	132	143,765	678,586
Pere Marquette.....1922	5,507	16,622	22,129	6.9	.....	1,326	650	26.3	346	18.0	3,508	170	253,700	1,308,377
.....1921	11,578	9,121	20,699	17.2	2,000	1,299	584	26.7	288	17.8	2,722	149	279,953	1,485,291
Pitts. & Lake Erie.....1922	8,156	14,109	22,265	20.3	.....	2,441	1,429	43.2	361	13.1	34,729	85	115,997	616,981
.....1921	19,613	7,915	27,528	45.5	1,395	2,239	1,191	34.3	117	5.3	14,175	92	109,844	571,692
Wabash.....1922	6,422	14,379	20,801	5.5	.....	1,487	677	23.1	573	32.3	4,927	183	438,181	2,627,001
.....1921	13,347	9,761	23,108	12.7	801	1,397	580	22.9	461	30.7	4,407	172	530,294	2,850,165
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio.....1922	47,247	63,064	110,311	9.2	.....	1,625	828	31.4	513	24.6	10,814	214	1,391,531	8,935,973
.....1921	70,671	26,937	97,608	12.3	23,081	1,469	697	30.1	368	20.1	6,921	192	1,414,318	9,004,067
Central R. R. of N. J.....1922	12,031	16,331	28,362	6.4	.....	1,289	704	33.4	247	12.1	10,140	230	336,399	1,611,152
.....1921	20,078	7,205	27,283	8.3	6,828	1,336	647	32.4	212	11.2	8,511	200	332,528	1,744,580
Chicago & Eastern Ill.....1922	10,083	7,482	17,565	16.6	.....	1,522	792	32.9	388	18.4	7,214	209	222,145	1,440,403
.....1921	16,884	3,191	20,075	13.0	4,579	1,357	669	30.1	230	12.4	4,092	189	227,271	1,518,131
Clev., Cin., Chic. & St. L.....1922	9,632	25,086	34,718	10.5	.....	1,780	893	30.5	608	29.2	8,876	157	731,680	4,526,143
.....1921	19,456	17,135	36,591	9.5	12,206	1,655	716	27.6	382	24.6	5,861	148	700,274	4,437,906
Elgin, Joliet & Eastern.....1922	8,400	5,885	14,285	10.2	.....	2,252	1,239	43.3	402	14.2	12,508	147	.....	.....
.....1921	9,635	4,296	13,931	8.1	860	2,182	1,162	41.8	263	10.0	7,987	145	.....	.....
Long Island.....1922	1,628	6,445	8,073	2.6	.....	747	301	24.2	57	3.9	1,179	412	188,769	1,106,936
.....1921	2,200	3,447	5,647	4.9	279	639	240	21.3	57	4.5	813	387	192,853	1,083,120
Pennsylvania System.....1922	150,910	143,776	294,686	7.3	5,933	1,646	841	33.9	426	19.3	11,503	190	5,232,236	36,237,638
.....1921	217,643	62,439	280,082	11.8	62,536	1,597	765	32.2	354	17.9	9,125	160	5,150,920	34,719,856
Philadelphia & Reading.....1922	13,741	26,884	40,625	3.8	.....	1,615								

### Delaware & Hudson Shippers' Guide

The Delaware & Hudson Company has issued, in a book of 350 pages, 8 in. by 10½ in., a very complete Shippers' Guide and Industrial Directory. It describes the industrial features of all cities and important towns on the company's lines, including some scraps of history. It was at Honesdale, Pa., on August 8, 1829, that the first locomotive in America made its debut, and a picture of the engine, the "Stourbridge Lion," is given. The gazetteer section includes details of the road's freight facilities at each station, and this is followed by an industrial directory giving the names of producers of the principal commodities procurable in this territory. The book has been prepared by the road's department for Industrial Development, George E. Bates, manager, and has a full complement of maps and indexes. It is well illustrated, and contains also a large number of advertisements, with further illustrations. In the directory section, the name of every advertiser is followed by a reference to the page of his advertisement. The introduction is by L. F. Loree, president of the road, who, in his usual trenchant style, exhorts shippers to promote their own and the railroad's interests by prompt and full loading of cars and prompt unloading; and by following the best practices in all features of their freight transportation.

### Construction Division of Army

#### Condemns Indictments

The Construction Division Association, composed of the former officers and civilian employees of the Construction Division of the Army, held its annual meeting at the Hotel Majestic, New York City on February 24. The meeting was largely attended, and many vigorous speeches were made in reference to the indictment against former Assistant Secretary of War Crowell, Colonel Starrett and others, and in reference to the suits which have been brought against 11 of the contractors who built 11 of the National army cantonments. The consensus of opinion of the members of the association was that the indictments and suits were without merit, and further that the members of the association were proud of the achievements of the construction division of the Army and considered these charges an unjustified reflection upon themselves. A resolution was also passed which stated as follows:

RESOLVED: The Construction Division Association is composed of engineers, architects and members of professions related to construction who volunteered for service during the war and were assigned to the Construction Division of the Army. This Division was intrusted with the great task of building camps in time to train troops to get to France. Charges have been made in civil and criminal proceedings of treasonable conspiracy to delay and obstruct this work of vital necessity, and to defraud the government. Charged as we were with the execution of this work no such conspiracy could have existed without our knowledge. No such conspiracy could have moved one step without our connivance and active aid.

The indictment is an indictment for treason of the fifteen hundred officers and the thousands of men who were entrusted with this work. It is an indictment of the capacity of the nation in the time of its need to draw from the ranks of the technical professions and the construction industry a body of men who will not knowingly betray their country.

In the mind of a large part of the public, not directly acquainted with this task, there has existed a complete misunderstanding of the facts as to the contracts under which this work was done. At the outbreak of the war it was found that to wait until specifications could be drawn and detail plans worked out for the great cities that had to be built to house and train our troops, would intolerably hold us back from fighting in the war.

In this situation the ordinary peace time method of contracting could not be used. It is frequently said and believed that in this exigency contracts were made for construction under which the contractor was to receive as profit 10 per cent on all expenditures made, so that the higher the cost the greater the profit.

Such contracts were in fact made by some governmental agencies, but not by the Construction Division of the Army. The contracts which are being attacked, all contained a limitation on the amount of the fee to be paid. In the sixteen National army cantonment contracts the maximum fee was reached long before the work was completed and the gross profit on the whole work ran between 2 per cent and 3 per cent.

The contracts gave the construction division control over the

work, which, if we did our duty, required us to terminate the contract if the work was not done as efficiently and economically as the urgency permitted. We believe this was done. We know we gave all that was in us to perform this task. We believed that speed meant thousands of lives and that our government and our civilization were in jeopardy.

Accepting as we do these charges as equally direct at us, through whom the whole construction industry contributed its co-operation in the war, we resent them as we would a charge of treason.

Be It Further Resolved, that copies of this resolution be sent to the President of the United States, the Attorney General of the United States, the Chairman of the Senate Judiciary Committee and the Chairman of the Judiciary Committee of the House of Representatives.

### The First Railroad Newspaper

"The Railroad Advocate" was published twice a month at Rogersville, Tenn., in 1831 and 1832; and the News Bulletin of the Southern Railway Company, which has resurrected a file of the paper in Atlanta, says it was the first railroad periodical in the world. It was conducted, as appears from a statement in the title page by "An Association of Gentlemen"; its purpose was to collect and disseminate information on the utility and practicability of constructing railroads, and nothing more; and it lived only one year. The chairman of the association was S. Powel and the secretary, James M. Howry.

A facsimile of the issue for January 19, 1832, reproduced by the Southern News Bulletin, shows with the title a coach somewhat like the stage-coach cars which were used in the first few years of railroading but with passengers on an upper deck which is like that of a London omnibus, except that over the heads of the passengers there is a canopy. The locomotive looks somewhat like Peter Cooper's; but the whole picture evidently is liberally idealized.

Among the news items published in various issues were the following:

In August, 1831, a "powerful steam locomotive" on the Manchester & Liverpool had hauled a train of 35 carriages containing about 900 people.

October, 1831; the railroad from Charleston, S. C., had been completed to Ten Mile Branch; "pleasure parties travel at about 33 miles an hour."

June, 1832, the South Carolina Railroad is the first in America on which the mail was transported.

The issue for February 28, 1832, had a long article advocating uniformity in the gage of railway tracks.

The issue of January 19, 1832, contained the following list of railroads under construction, some of them partly finished:

"Baltimore and Ohio—whole length 250 miles—60 miles completed and in use.

"Albany and Schenectady—16 miles in length—12 miles in use.

"Charleston and Hamburg—135 miles in length—about 20 miles completed.

"Mauch Chunk, completed and in use, 9 miles.

"Quincy, near Boston, now in use, 9 miles.

"Ithaca and Owego, 29 miles.

"Richmond and Chesterfield, 12 miles.

"Camden and Amboy, 50 miles.

"Lackawaxen, 16 miles."

Appended to this was a list of some twenty other railroad projects "now making or soon to be commenced."

### Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next convention, May 1-4, 1923, Hotel Albany, Denver, Colo. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Louis B. Rhodes, Vapor Car Heating Company, Munsey Building, Washington, D. C. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago. Next convention, May 7-9, 1923, Norfolk, Va.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago. Next meeting, May 9, 1923, Signal Mt. Inn, Chattanooga, Tenn.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 13-15, 1923, Kansas City, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.



**AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.**—C. Borchardt, 202 North Hamlin Ave., Chicago, Ill.

**AMERICAN RAILWAY ASSOCIATION.**—J. E. Fairbanks, General Secretary, 75 Church St., New York, N. Y.

Division I.—Operating, J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.

Medical and Surgical Section. J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association). J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents).—W. A. Fairbanks, 30 Vesey St., New York, N. Y.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Annual meeting, March 13-15, 1923, Congress Hotel, Chicago. Exhibit by National Railway Appliances Association, March 12-15.

Construction and Maintenance Section. E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Annual convention, March 13-15, Drake Hotel, Chicago.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual meeting, beginning June 20-22, Orchestra Hotel, Chicago.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual meeting, May 15-17, 1923, Chicago.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual convention, May 29-31, Montreal, Que.

Car Service Division.—C. A. Buch, 718 18th St., N. W., Washington, D. C.

**AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 16-18, 1923, Seattle, Wash. Exhibit by Bridge and Building Supply Men's Association.

**AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—A. Leckie, Industrial Agent, Kansas City Southern Ry., Kansas City, Mo. Annual meeting May 9-11, St. Louis, Mo.

**AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Congress Hotel, Chicago. Annual meeting, March 13-15, Chicago. Exhibit by National Railway Appliances Association, March 12-15.

**AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.**—(See American Railway Association, Division V.)

**AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

**AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, Union Trust Bldg., Washington, D. C. Annual meeting, May 9, Washington, D. C.

**AMERICAN SOCIETY FOR STEEL TREATING.**—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio.

**AMERICAN SOCIETY FOR TESTING MATERIALS.**—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa. Annual meeting, June 25, Chalfonte-Haddon Hall Hotels, Atlantic City, N. J.

**AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Prof. J. H. Dunlap, University of Iowa, Iowa City, Ia. Regular meeting 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York.

**AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York.

Railroad Division.—A. E. Stuebing, Managing Editor, Railway Mechanical Engineer, Woolworth Bldg., New York.

**AMERICAN TRAIN DISPATCHERS' ASSOCIATION.**—C. L. Darling, 1310-1311 Mallery Bldg., Chicago, Ill. Next convention, June 18, 1923, Chicago.

**AMERICAN WOOD PRESERVERS' ASSOCIATION.**—S. D. Cooper, A. T. & S. Fe R. R., Topeka, Kan. Next convention, 1924, Kansas City, Mo.

**ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, Northern Pacific R. R., St. Paul, Minn. Next meeting, May 16-18, 1923, Brown Palace Hotel, Denver, Col.

**ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

**ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, 320 Munsey Bldg., Washington, D. C.

**ASSOCIATION OF RAILWAY SUPPLY MEN.**—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

**ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.**—(See American Railway Association, Division I.)

**ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.**—(See American Railway Association, Division II.)

**BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Assn.

**CANADIAN RAILWAY CLUB.**—W. A. Booth, 53 Rushbrook St., Montreal, Que.

**CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

**CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—Thomas B. Koeneke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

**CENTRAL RAILWAY CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2d Thursday in January, March, May, September and November, Hotel Iroquois, Buffalo, N. Y.

**CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—W. P. Elliott, Terminal Railroad Association of St. Louis, East St. Louis, Ill.

**CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.**—D. B. Wright, 34th St. and Artesian Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

**CINCINNATI RAILROAD CLUB.**—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.

**EASTERN RAILROAD ASSOCIATION.**—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting May 10, 1923, Railroad Club, New York.

**FREIGHT CLAIM ASSOCIATION.**—(See American Railway Association, Division VII.)

**GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Friday in month, Room 1414 Manhattan Bldg., Chicago.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

**INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—J. G. Crawford, 702 E. 51st St., Chicago. Next meeting, May 21-24, 1923, Cleveland, Ohio. Exhibit by International Railway Supply Men's Association.

**INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 4-7, Hotel Sherman, Chicago.

**INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.

**MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 26 Cortlandt St., New York.

**MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.**—(See A. R. A., Division V.)

**MASTER CAR BUILDERS' ASSOCIATION.**—(See A. R. A., Division V.)

**NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.**—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1924, Kansas City, Mo.

**NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.**—James B. Walker, 49 Lafayette St., New York. Next convention, Dec. 4, 1923, Miami, Fla.

**NATIONAL FOREIGN TRADE COUNCIL.**—O. K. Davis, 1 Hanover Square, New York. Tenth convention, May 2-4, 1923, New Orleans, La.

**NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition, March 12-15, at convention of American Railway Engineering Association.

**NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

**NEW YORK RAILROAD CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York.

**PACIFIC RAILWAY CLUB.**—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

**RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Next meeting, June 13, 1923, Richmond, Va.

**RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa.

**RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Hotel, Pittsburgh, Pa.

**RAILWAY DEVELOPMENT ASSOCIATION.**—(See Am. Ry. Development Assn.)

**RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

**RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.**—J. W. Fogg, Boss Nut Company, 1732 N. Kolmar Ave., Chicago. Meeting with Traveling Engineers' Association.

**RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

**RAILWAY REAL ESTATE ASSOCIATION.**—R. H. Morrison, C. & O. Ry., Richmond, Va.

**RAILWAY SIGNAL ASSOCIATION.**—(See A. R. A. Division IV, Signal Section.)

**RAILWAY STOREKEEPERS' ASSOCIATION.**—(See A. R. A. Division VI.)

**RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V. (No exhibit in 1923.)

**RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

**RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

**ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 18-20, 1923, Chicago. Exhibit by Track Supply Association.

Regular meetings, 2d Friday in month, except June, July and August.

**ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo.

**SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

**SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, P. O. Box 1205 Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

**SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—J. L. Carrier, Car Serv. Agt., Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

**SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—H. S. White, 9 N. Jefferson St., Chicago.

**TRACK SUPPLY ASSOCIATION.**—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

**TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Exhibit by Railway Equipment Manufacturers' Association.

**WESTERN RAILWAY CLUB.**—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Regular meetings, 3d Monday each month, except June, July and August.

## Traffic News

### Eastern Roads Contest Mileage Ticket Decision

At a meeting of the Eastern Presidents' Conference in New York City on February 23, a large number of the leading roads decided to bring suits to set aside the proposed order of the Interstate Commerce Commission, providing for an interchangeable scrip book at 20 per cent below standard fares. For reasons heretofore stated, such an order is regarded by the executives as grossly discriminatory and unfair to the large majority of the traveling public; and it is estimated that it would cost the railroads not less than \$60,000,000, yearly. It is felt that the railroads are in no condition to sustain any such reduction.

At Washington on the same day there was a conference on proposed rules for the coupon books. Vigorous opposition to the principal rules and regulations proposed by the railroads was voiced by representatives of the commercial travelers' organizations who conferred with Commissioner Meyer. The commission did not issue its formal order at the time of its decision, withholding this pending conference as to the rules and regulations which were to be prescribed.

After some discussion there was a general agreement as to most of the minor regulations proposed, but the salesmen persisted in their objection to a requirement that users be identified by photograph as well as by signature, and that the coupons shall be exchanged for tickets at ticket offices. The only exception proposed to this last is in case tickets are not on sale, in which event coupons may be honored within the run of the initial conductor. The salesmen also insisted that the coupons be made acceptable for baggage charges. As to these three points it was decided to submit a statement of disagreement to the commission, with the arguments advanced by each side.

Henry Wolf Bikle, who appeared as counsel for the railroads, said that the railroads had tried to frame a set of appropriate rules, but that they reserved the right to litigate or protest against the order.

There was a lively and protracted discussion over the proposed photograph requirement. It would be a great inconvenience to have to have photographs taken in small towns. When it was suggested that many of those who would use the coupon books could easily have six photos taken at once, for 35 cents, and keep them on hand, they urged the case of the business man desiring to take a trip on short notice.

Various passenger officers spoke on the importance of protecting the tickets against manipulation and scalping which would make a discount available for small users. When the other side urged that the purpose of the books was to stimulate travel and that the rules should be made as liberal as possible to make their use popular, Mr. Bikle pointed out that the purpose is to stimulate travel, not to stimulate the use of the mileage books.

There was also a protracted argument over the proposal that the coupons be made good on trains only within the first conductor's run from a closed station; it would be inconvenient to leave the train, exchange the coupons for a ticket and recheck baggage. The railroad men objected to adding to the duties of the conductor.

The railroads proposed that the books contain 1,800 coupons each representing 5 cents, and that in case the fare does not end in 0 or 5, the fare should be advanced to do so, but a compromise was finally reached so that the fare would be reduced to a figure ending in 0 or 5 if it ends in 1, 2, 6 or 7. No objection was made to the rule that the scrip coupons should not be issued for the purchase of other tickets which are ordinarily sold at a reduced rate.

It was proposed that partially used scrip books may be redeemed by deducting the total face value of the coupons used from the purchase price of the book and refunding the difference.

Testimony was also introduced by the railroads to show that the books could not be printed for use before May 1.

The National Council of Traveling Salesmen's Associations proposes to hold a "mass meeting" in New York on March 9, where support will be sought for a program of opposition to the railroads' protest. The meeting is to be held in the grand ballroom of the Waldorf-Astoria Hotel.

## Commission and Court News

### Interstate Commerce Commission

Hearings in the Interstate Commerce Commission investigation of the financial operations and practices of the Western Pacific and Denver & Rio Grande companies will be resumed at Washington on May 6, before Examiner Hoy.

### State Commissions

The California Railroad Commission has invited California shippers and representatives of railroads to attend a conference at San Francisco on March 2, 1876, to formulate plans for the presentation to the Interstate Commerce Commission of the wishes of California in the regrouping of the railroads in that state.

### Personnel of Commissions

A. B. Buckworth, whose appointment as deputy minister of railways of British Columbia was reported in the *Railway Age* of February 3, was born on March 2, 1876, at Birmingham,



A. B. Buckworth

England. In 1884 he emigrated to Canada, where he received his education. He entered railway service in 1896 as a clerk in the freight office of the Canadian Pacific at Hamilton, Ont., and held this position for two years, resigning in 1898 to engage in the mining business. He re-entered the service of the Canadian Pacific in 1901, in the passenger department, and later held a position in the land department of the Great Northern, with which company he was employed in 1908, when he was made manager

of the Railway Contracting Timber Company. After four years in this work he engaged in special service in connection with the shipping investigations carried on both by the United States and Canada, and served in this capacity until 1918. He was appointed general manager and assistant to the receiver of the Spokane & British Columbia in 1918, which position he held until 1920. He was appointed general manager of the Pacific-Great Eastern on August 1, 1920, in which capacity he was serving on January 31, 1923, when he was appointed deputy minister of railways for the province of British Columbia. His headquarters are at Victoria, B. C.

### Supreme Court of the United States

#### Time Limitation for Action for Excess Freight Charges

A shipper sued in the Federal District Court for the Western District of Missouri, May 12, 1915, to recover excess charges collected on sundry interstate shipments of strawberries in 1912. The railroad demurred, the basis of claim being more than two years old. The trial court overruled the demurrer and this was approved by the Circuit Court of Appeals (272 Fed. 681).

The Supreme Court of the United States reverses that judgment, following *Phillips v. G. T. W.*, 236 U. S. 662, 667, and holds that the demurrer should have been sustained.—*K. C. S. v. Wolf*. Decided February 19, 1923. Opinion by Justice McReynolds.



## Foreign Railway News

### Brazilian Electrification Credit Authorized

Authorization has been granted by the state of Sao Paulo, Brazil, for a credit of 1,297,418 milreis (milreis equals 54.6 cents at par) to be used for electrification of the Campos do Jordao Railway, according to Assistant Trade Commissioner Cremer at Rio de Janeiro.

### Operation of Ruhr Railroads

#### to Be Put on Business Basis

The French and Belgian occupants of the Ruhr plan to abandon the policy of operating the railroads on a military basis with no charges and to put their operation instead on a business basis, according to Paris dispatches to the New York Times. This will be possible, it is said, because of the large number of striking German employees who are returning to their posts.

### Labor Trouble in Peru

A general strike affecting all union labor has been called and is now effective in Lima and Callao, Peru, according to Acting Commercial Attaché Dunn at Lima. Transportation facilities are the most seriously affected. The dispatch of vessels at the port of Callao is impeded and traffic on the Central Railroad of Peru is at a standstill. Local passenger traffic is limited to omnibuses. Should the strike continue, it is possible that the food situation in the two cities will become serious.

### Two Accidents on Mexican (Vera Cruz) Railway

On February 23, five employees were killed when two passenger trains crashed head-on on the Mexican (Vera Cruz) Railway, and again on February 24, two persons were killed and several were injured when the private car of Vincent Yorke, of London, chairman of the road, left the rails and fell into a ravine. Mr. Yorke was badly injured and his wife is not expected to live. Others injured were W. T. Ingram, assistant general manager; J. R. Turner, division superintendent; J. J. Clarke, superintendent of transportation, and several employees.

### Railway Construction in Colombia

Work is progressing on the extension of the Ferrocarril del Pacifico (Pacific Railroad) northward from Buenaventura, Colombia, to Cartago, department of El Valle del Cauca, according to Vice-Consul McEnelly at Buenaventura. The length of the line already in operation is 190 miles, and an extension of 127 miles is planned for the next two years. The railroad is of 3-ft. gage and is owned and operated by the Colombian government, under the direction of the ministry of public works.

The ministry has fixed as the equipment necessary for each 25 miles of the Pacific Railroad 4 locomotives, 8 passenger cars, 10 box cars, 2 live-stock cars, 8 flat cars, 2 gondolas, and 5 dump cars. According to the chief engineer of the railroad, the present rolling stock consists of 25 locomotives (16 of the Mogul type), 40 passenger cars, 60 box cars, 13 live-stock cars, 60 flat cars, 32 gondolas, and 50 dump cars. Provided the extension planned for the next two years is completed, the following equipment will be needed: 27 locomotives, 64 passenger cars, 70 box cars, 13 live-stock cars, 44 flat cars, and 15 dump cars.

### New Italian Railways Commissioner

#### Combats Red Unionism

Eduardo Torre, High Commissioner of the Italian Railways, probably has the most difficult task of all the lieutenants of Premier Mussolini, according to the New York Tribune. He is endeavoring to convert the railroad system, with its unenviable record of deficit, maladministration, scandal and graft, into a profitable, efficient and going concern.

To help him Signor Torre has the backing of 50,000 Fascist railroad men, who have formed a union. While they are in a minority as compared with the total of 240,000 railroad employees, still they exert a strong influence which is entirely for reform and improvement. They declare they will work sixteen hours a day if necessary, and that they can break any strike which might be called by the majority.

The new commissioner's first action was to abolish the "little parliament," or "parlamentino," of railroad union delegates, which in the past exercised a veto in the railroads' management. This consisted of 700 men, each possessed of an annual pass over all lines and with freedom to absent himself from his duties whenever he felt so inclined.

With the abolition of the "parlamentino" a telling blow has been dealt to the Red unions which have, until now, ruled the labor affairs of the Italian lines with an iron hand. While Torre will not abolish the Red unions as such, he will insist that no employee of the railroads carry on a campaign against the state as at present constituted.

### Proposed Colors for British Railway Rolling Stock

A correspondent in our contemporary, the Railway Gazette (London), has recently published a short discussion on the subject of proposed colors for cars and locomotives of the recently consolidated British railways. The discussion follows:

"It has been announced that the locomotives of the London & North Eastern Railway are to be painted green for passenger and black for freight engines. It will be interesting to see what colors are chosen for the rolling-stock of the London, Midland & Scottish and the Southern Railway. As the Great Western uses green for all its locomotives, both passenger and freight, it is rather to be hoped that the remaining two companies will select different colors.

"A popular choice on the part of the London, Midland & Scottish would undoubtedly be that of the well-tryed Midland red. It would, however, be a pity if the beautiful blue of the Caledonian engines became only a memory, and I throw out the hint to the Southern Railway that it should paint its passenger engines this distinguished shade. What could be more appropriate than hyacinth-colored engines hauling loads of holiday-makers to the sunny south? From observation it would appear that both the Midland red and the Caledonian blue are good wearing colors, and as such cannot be uneconomical. Further economy could be obtained by dispensing with elaborate lining, finishing off plain colors all over, as is now done with quite pleasing effect by the Great Western and the Highland Railway. The style of lettering and numbering affects appearances more than lining out and paneling. Roman letters and the numerals used on the Midland engines look much better than block lettering and are probably no more expensive to apply.

"As regards passenger rolling-stock, I have not heard that anything definite has yet been settled. We may hope that the distinctive white and plum of the late London & North Western and Caledonian will be retained for the London, Midland & Scottish Railway; and the well-known varnished teak of the Great Central, Great Northern and East Coast Joint Stock for the London & North Eastern. For the Southern, if blue is chosen for the engines, the same shade of blue, with perhaps cream upper panels, could scarcely be improved upon for the passenger cars.

"That this question of colors is one of importance is evidently realized by the directors of the several companies. The decisions come to in the next few weeks will doubtless hold for many years, and it is, therefore, important that very careful consideration should be given to the matter, not only from the point of view of direct economy, but also from the advertising standpoint. The railways of this country are justly famed for their well-kept equipment. Since the war, there has been a tendency on the part of some lines to economize in paint at the expense of reputation. This is regrettable, for although there can be little doubt that immediate economy does result from not painting locomotives beyond the necessary prime coat of protective paint, yet it is very questionable whether in the long run the policy pays.

"A dirty, colorless engine is a bad advertisement to the public, and especially disappoints foreigners who have heard—as is often the case—of well-kept British railways. This attitude has a reaction on the morale of the railway concerned, which very probably is reflected indirectly in the financial department. Machinery pays for keeping spick and span."

## Equipment and Supplies

### Locomotives

THE ANN ARBOR has ordered 3 Mikado type locomotives from the American Locomotive Company.

THE GULF COAST LINES is inquiring for six eight-wheel switching and four Pacific type locomotives.

THE NEW JERSEY ZINC COMPANY has ordered one Mogul type locomotive from the Baldwin Locomotive Works.

THE PHILADELPHIA & READING has ordered 25 Consolidation type locomotives from the Baldwin Locomotive Works.

THE BOSTON & MAINE has ordered 10, 2-10-2 type locomotives and 10 Pacific type locomotives from the American Locomotive Company.

THE NEW YORK CENTRAL has ordered for the Pittsburgh & Lake Erie 10 Mikado type locomotives from the American Locomotive Company.

THE LOUISVILLE & NASHVILLE, reported in the *Railway Age* of February 24 as contemplating buying about 50 locomotives, has ordered 30 Mikado type locomotives and 6 Pacific type locomotives from the American Locomotive Company.

THE ELGIN, JOLIET & EASTERN, reported in the *Railway Age* of February 17 as inquiring for 15 Mikado type locomotives, has ordered 10 Mikado type locomotives from the American Locomotive Company.

THE SOUTHERN reported in the *Railway Age* of February 17, as inquiring for 50 Mikado type locomotives and 16 Pacific type locomotives, has ordered this equipment from the American Locomotive Company.

THE GREAT NORTHERN, reported in the *Railway Age* of February 3 as inquiring for 50 locomotives, has ordered 28, 2-10-2 type locomotives and 30 Mountain type locomotives from the Baldwin Locomotive Works.

CHICAGO, INDIANAPOLIS & LOUISVILLE, reported in the *Railway Age* of February 17 as contemplating the purchase of a small number of locomotives is expected to place an order for three six-wheel switching locomotives this week.

### Freight Cars

THE BETHLEHEM STEEL COMPANY is inquiring for 30 hot metal cars of 50-tons' capacity.

THE CHICAGO & ILLINOIS MIDLAND is reported to be inquiring for 500 gondola car bodies.

THE FRUIT GROWERS EXPRESS is inquiring for 2,000 steel underframes for refrigerator cars.

THE SEABOARD AIR LINE is inquiring for 1,000, 40-ton steel underframe ventilated box cars and 1,000, 50-ton steel underframe gondola cars.

THE GULF REFINING COMPANY has ordered 50 tank cars from the Standard Steel Car Company in addition to the 100 ordered from the same company, as reported in the *Railway Age* of February 10.

THE BUFFALO & SUSQUEHANNA, reported in the *Railway Age* of February 3 as inquiring for 200 all-steel hopper car bodies of 55-tons' capacity, has ordered this equipment from the Buffalo Steel Car Company.

THE HILLMAN COAL & COKE COMPANY has ordered 300 hopper cars of 70-tons' capacity from the Pressed Steel Car Company. These are in addition to the previous order for 300 cars noted in the *Railway Age* of February 24.

THE CAROLINA, CLINCHFIELD & OHIO, reported in the *Railway Age* of February 3 as inquiring for underframes and superstructures for 10 caboose cars, has ordered this equipment from the Virginia Bridge & Iron Company.

THE LOUISVILLE & NASHVILLE, reported in the *Railway Age* of February 24 as contemplating the purchase of 6,000 freight cars, is inquiring for from 2,000 to 4,000 hopper cars of 50 tons' capacity and from 1,000 to 2,000 composite gondola cars of 50 tons' capacity.

THE ILLINOIS CENTRAL, reported in the *Railway Age* of February 10 as inquiring for 1,500 automobile cars and 500 automobile-furniture cars, has ordered 1,000 automobile cars from the American Car & Foundry Company, 500 automobile cars from the Western Steel Car & Foundry Company and 500 automobile-furniture cars from the Mt. Vernon Car Manufacturing Company.

### Passenger Cars

THE CHICAGO & ILLINOIS MIDLAND is reported to be inquiring for 50 miscellaneous passenger cars.

THE HUDSON & MANHATTAN, reported in the *Railway Age* of January 27 as inquiring for 25 bodies for motor passenger cars, has ordered these bodies and trucks from the American Car & Foundry Company. An order for the brakes for these cars has been given to the Westinghouse Traction Brake Company and for the motors and controls to the General Electric Company.

### Iron and Steel

THE ATCHISON, TOPEKA & SANTA FE has ordered 745 tons of structural steel for oil storage tanks at various locations from the Kansas City Structural Steel Company.

### Machinery and Tools

THE WESTINGHOUSE ELECTRIC & MFG. COMPANY has built for the Chemins de Fer de Midi, France, twenty-five transformers rated 6667 kilovolt-amperes each, for 50 cycle system. These transformers are going to be used on a nominal 150,000 volt system which is to be the voltage adopted for the new national transmission system. It is the highest voltage thus far used in Europe.

### Signaling

THE NEW YORK CENTRAL has ordered from the Federal Signal Company a mechanical interlocking with a style A machine, 40 levers, to be installed at the west end of the freight bridge across the Hudson river at Albany.

THE NORFOLK & WESTERN has ordered 49 style "S" A. C. semaphore signals from the Union Switch & Signal Company, to be installed by railroad forces in a 22-mile extension of its automatic block signaling between Farm, W. Va., and Iaeger, which territory is being electrified with 25 cycle, propulsion current.

THE CHICAGO, BURLINGTON & QUINCY has ordered from the Federal Signal Company semaphores, relays and switch boxes for automatic block signaling on its lines, single track, between St. Croix Junction, Minn., and Losey, Wis.; Stockholm and Alma, Wis.; Bluff Siding and Purdy, Wis.; and McCook and Culbertson, Neb., a total length of road of about 55 miles. The semaphores are type 4, the relays type M, and the switch boxes style D.

THE PENNSYLVANIA SYSTEM, Central region, is installing an electro-pneumatic interlocking plant at "UY" Tower, Aspinwall, Pa. The interlocking machine will have 41 working levers and 10 spaces in a 51-lever frame. A total of 30 style "A-1" switch movements with style "C" cut-off valves are being installed, with all high and dwarf signals of the position-light type. This new plant when completed will take the place of three mechanical interlockings. The field work is being done by the railroad company's forces. All material is being furnished by the Union Switch & Signal Company.



## Supply Trade News

**W. C. Irwin** has been appointed southwestern sales manager for the **Union Railway Equipment Company**, with headquarters at St. Louis, Mo.

The **Truscon Steel Company** will construct an addition to its Youngstown, Ohio, plant which will increase its working force approximately 20 per cent.

**F. E. Sheehan**, representative at St. Louis, Mo., of the **Texas Company**, Houston, Texas, has been appointed assistant district manager of the Western district, with headquarters in the Arcade building, St. Louis.

**W. A. Day** has been appointed manager of sales for the territory north of the Ohio river for the **Casey-Hedges Company**, Chattanooga, Tenn., manufacturers of boilers, with headquarters in the Marquette building, Chicago.

**M. R. Shepard**, secretary of **Crerar, Adams & Company**, Chicago, was elected president of the company at a meeting of the board of directors on February 21. He was born on



M. R. Shepard

November 17, 1877, and received his early education in the Chicago public schools and at the Morgan Park Military Academy, Morgan Park, Ill. He entered the employ of Crerar, Adams & Company in the capacity of a city collector shortly after attending the latter school. At that time the company was located in a small building at the corner of what is now South Water and Wells streets. He held the position of city collector until 1911, when he was promoted to secretary, which position he has held continuously until his recent promotion. He has been employed by Crerar, Adams & Company for 35 years. He succeeds his father, E. S. Shepard, deceased, who has been president of Crerar, Adams & Company for the last 54 years.

**C. S. Sale**, since 1918 assistant to the president of the **Railway Car Manufacturers' Association**, New York City, has resigned to accept an appointment with the **American Car & Foundry Company**, 165 Broadway, New York City.

**Charles D. Jenks** has resigned as president and director of the **Damascus Brake Beam Company**, Cleveland, Ohio, and has become affiliated with and will be a vice-president of the **Chicago-Cleveland Car Roofing Company**, with headquarters at Chicago.

**R. W. Williams** has been appointed southwestern district manager of the **Westinghouse Air Brake Company** and the **Westinghouse Traction Brake Company** and also has been elected vice-president of the **American Brake Company** with headquarters at St. Louis, Mo.

The **Curtain Supply Company** has just moved into its new quarters at Elkhart, Ind. The location comprises about four acres of land on which a modern, one-story, concrete and steel, fire-proof building occupying an area of approximately 79,000 square feet has been built. The general offices of the company are located at Elkhart, where **T. W. Holt**, second vice-president and general manager, has his headquarters and the company has an office in Chicago at 355-361 West Ontario

street where **Holmes Forsyth**, president and **W. W. Willits**, first vice-president and treasurer are located.

Plans have been formulated for the merger of the **National Wholesale Lumber Dealers' Association** and the **American Wholesale Lumber Association**, which will be recommended to the members of both associations at their annual meetings in Pittsburgh, Pa., March 21 and 22, to be put in effect as soon as possible.

The **Tennessee Coal, Iron & Railroad Company** has leased the plant of the **Clearfield Steel Company**, Birmingham, Ala., heretofore occupied by the **Chickasaw Shipbuilding & Car Company**, and will use it for the manufacture of railroad cars. It will be known as the **Clearfield Car Works** of the **Tennessee Coal, Iron & Railroad Company**.

The **Philadelphia Electric Company** has bought from the **Westinghouse Electric & Manufacturing Company** three 6,000 kw., single phase frequency changer sets, to comprise the initial installation in its Somerset substation for the supply of 25 cycle energy for operation of the **Camden to Atlantic City**, **West Jersey** and **Seashore** division of the **Pennsylvania Railroad**.

The **Central Steel Company** of Massillon, Ohio, manufacturers of alloy steel products for the automotive industry has decided to enlarge its field of activities, by the addition of special alloy steels for railroad service, such as axles, springs and reciprocating parts of locomotives. This department will be under the direction of **Irving H. Jones**, director of railroad development with office in the **Peoples Gas building**, Chicago. Mr. Jones was formerly sales engineer with **Joseph T. Ryerson & Son**.

The **Uehling Instrument Company**, Paterson, N. J., has appointed **Charles J. Schmid** in charge of sales in Greater New York and Long Island with headquarters at Paterson. **Mitsui & Co.** have just been appointed exclusive representatives in Japan and China. The head office of **Mitsui & Company** is at Tokio and its New York City branch office is at 65 Broadway. **John E. Arnold**, 15½ South Fourth street, Tulsa, Okla., has been appointed agent in charge of territory in the state of Oklahoma, and **H. R. N. Johnson**, 917-A Marquette avenue, Minneapolis, Minn., has been appointed agent, whose territory includes Minnesota, North Dakota and South Dakota.

### Pressed Steel Car Company

The **Pressed Steel Car Company** for the year ended December 31, 1922 reports a net operating loss of \$810,606, against a profit of \$947,847 for the previous year. Gross earnings were cut down from \$1,081,906 in 1921 to \$58,312 in 1922. The surplus at the end of the year was \$13,461,212, as compared with \$14,677,900 at the end of 1921.

The balance sheet shows net current assets of \$15,275,364 against net current liabilities of \$8,038,930. The annual report shows another balance sheet, as of December 31, 1922, which reflects the financial condition of the **Pressed Steel Car Company** at that date, after applying the total proceeds of the \$6,000,000 5 per cent convertible gold bonds, sold in December, the proceeds of which are to be received in 1923.

President **F. N. Hoffstot**, in his report to the stockholders, said in part:

The results obtained, while not satisfactory, are the result of the most careful and conscientious work on the part of the organization. The conditions that had to be met during 1922, affecting particularly the manufacture of cars, were unusually difficult. Inquiries for cars early in the year were few and as every encouragement had to be given the railroads to place orders, business was taken at cost and in some cases, below cost, in order to enable us to establish and maintain an organization. The manufacture of cars is a commitment to execute four or five months in the future so that increases in wages or intermittent operations due to unusual delays in securing labor and materials, means increased cost which has to be borne by the company and during no period in our history did such unfavorable conditions prevail as those we had to contend with during the second and third quarters of the year just ended. The coal and railroad strikes thoroughly unsettled labor so that it was continually shifting, which curtailed output and increased overhead expense. For weeks and months during the year, representatives of the railroads and manufacturers, by personal solicitation and advertisements, offered all sorts of inducements to men to change their place of employment, and this, while not increasing the available supply of competent workmen, did increase the cost of production.

Your company and its subsidiaries at no time took an excess volume of the going business and, notwithstanding the difficulties referred to above, have executed as large a percentage of their orders per month as any other car company, showing that our operations were as good as any of our com-

petitors and if there is no upheaval in basic conditions we believe, even with somewhat lesser profits, resulting from increased competition, 1923 should be a fair year for your company, as during the last quarter of the year the situation improved somewhat and the railroads made large purchases of cars, which will be executed during 1923.

The company's business is dependent upon the success of the railroads, and, while railroad earnings fail to produce an admittedly fair return on capital, continued ill-advised legislation will increase rather than decrease the costs of operation. Every day it is more difficult for them to establish earnings that will replace and keep up their present equipment, take care of new business and leave a margin of earnings that will encourage investors to take their new securities. The public always pays the bills, sooner or later, and should certainly by this time realize that unless the railroads are prosperous the country will not be prosperous, so if legislators could be induced to give the railroads an opportunity to work out their own situations under the guidance of the Interstate Commerce Commission, already established and rich with experience, rather than to force the railroads to spend their money to combat legislation proposed by those without practical experience, it would be better for the whole country.

We are calling attention to the foregoing important national questions with the hope that stockholders will use their best efforts to have their legislators realize the effect of these problems upon important industries.

### Air Reduction Company, Incorporated

The report of the Air Reduction Company, Incorporated, for the year ended December 31, 1922, show net profits before federal taxes of \$1,003,207, as compared with \$630,524 for the previous year. Net earnings after all reserves and federal taxes in 1922 amounted to \$5.60 per share.

As a result of the purchase of the Davis-Bournonville Company early in 1922, the balance sheet of the Air Reduction Company, Incorporated, shows an increase in the item of inventories from \$1,042,583 at the close of 1921 to \$1,528,143 at the close of 1922. The sum of cash and accounts receivable, less the item accounts payable on the 1922 balance sheets shows an increase of approximately \$112,000 over December 31, 1921.

### Railway Steel-Spring Company

The Railway Steel-Spring Company, according to its annual report issued this week, shows net earnings for 1922 of \$2,327,294 after charges, depreciation and reserve for taxes. This compares with net earnings of \$1,551,636 in 1921. The company reported a surplus for the year 1922 of \$302,294, after dividends which amounted to \$2,025,000, against a deficit of \$473,364 for the preceding year. On December 31, 1922, the profit and loss surplus stood at \$12,771,284, as compared with \$12,468,990 on December 31, 1921.

F. F. Fitzpatrick, president, in his remarks to the stockholders, said:

"The success of your company continues to depend almost entirely upon the buying power of the United States railroads. About the middle of the year there was a marked increase in the purchasing of locomotives and railway cars, and the earnings for the year are due largely to these improved conditions, which are still prevailing. The outlook for business through 1923 is encouraging.

For the purpose of economy, it has been decided to discontinue operations at the wheel works of the company and to manufacture steel-tired wheels at our tire mills."

### Obituary

David Augustus Decrow, manager of the waterworks department of the Worthington Pump & Machinery Corporation, New York, died in East Orange, N. J., on February 15. He was born in Bangor, Me., and graduated from Maine State College of Mechanic Arts of the University of Maine at Orono, in the class of 1879. He served as a mechanical draftsman with the Holly Manufacturing Company and in 1893 was appointed designing engineer, in 1900 he became chief engineer and in 1903 secretary of the same company. When the Holly Manufacturing Company was combined with the Snow Steam Pump Works at Buffalo, N. Y., as part of the International Steam Pump Company and Mr. Decrow went to Buffalo and took charge of the pumping machinery manufactured by both companies. The International Steam Pump Company was succeeded by the Worthington Pump & Machinery Corporation in April, 1916, and shortly thereafter Mr. Decrow went to the office in New York as manager of the waterworks department and continued in this position until his death.

## Railway Construction

**ATCHISON, TOPEKA & SANTA FE.**—This company will construct extensions to the shop facilities at San Bernardino, Cal., at an approximate cost of \$1,250,000. A portion of the work to cost \$750,000 will be undertaken this year. Plans include also the rearrangement of the machine, boiler and paint shops. A 120-ft. turntable to cost approximately \$60,000 will also be constructed.

**ATCHISON, TOPEKA & SANTA FE.**—This company contemplates the construction of a tie treating plant at National City, Cal., to cost approximately \$250,000. This company will also construct additional storage tracks at Los Angeles, California, to cost \$115,000.

**BELT RAILROAD OF INDIANAPOLIS.**—The Duffy bill, which provides for the elevation of the tracks of this company in Indianapolis, has been passed by the Indiana House of Representatives. Under the bill the city and county will pay 50 per cent of the cost of elevating the railroad's tracks in the city.

**CHESAPEAKE & OHIO.**—This company is calling for bids for the construction of an 89-ft. by 27-ft., one story, brick, passenger station, with a 25-ft. by 55-ft. baggage and express building, a butterfly shed 310 ft. long and a concrete platform 400 ft. long, at Pikeville, Ky.

**CHICAGO, BURLINGTON & QUINCY.**—This company has awarded a contract to the Blome-Sinek Company, Chicago, for the construction of caisson foundations for a new outbound freight house and viaduct to be constructed at Canal and Polk streets, Chicago, as reported in the *Railway Age* of February 10.

**CHICAGO, ROCK ISLAND & PACIFIC.**—This company closed bids on March 1 for the construction of a 13-stall roundhouse at Valley Jct., Iowa, to replace a structure which was recently destroyed by fire.

**CHICAGO, ROCK ISLAND & PACIFIC.**—This company is calling for bids for the reconstruction of its passenger station at Valley Junction, Iowa.

**CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.**—This company has been ordered by the Railroad and Warehouse Commission of the State of Minnesota to construct a subway under its tracks at Medelia, Minn., to eliminate a grade crossing.

**COLUMBUS, MINERAL RANGE & SOUTHERN (Electric).**—This company, which was recently organized at Columbus, Mont., with F. M. Post as chief engineer, will construct 80 miles of track from Columbus along the Stillwater river in a southwesterly direction, into a new mining district. Trains will be operated by electricity. Contracts for grading will be let about May 1 and for track laying, about June 1. One bridge 500 ft. long and seven bridges from 60 ft. to 80 ft. long will be constructed. Terminal facilities and office buildings will be constructed at Columbus, as well as other necessary structures along the right-of-way. Rolling stock and motive power will be purchased in July and August, according to the plans of the company. The principal commodities which the road will carry are minerals, including coal, and farm produce.

**GALVESTON, HARRISBURG & SAN ANTONIO.**—This company has awarded a contract to V. E. Ware, El Paso, Tex., for the construction of a locomotive erecting shop at El Paso. The structure will be 258 ft. long by 84 ft. wide with a height of 60 ft. and will cost \$200,000, including cranes, pits, tracks and drainage. It will be of structural steel frame, brick walls, steel sash and concrete floors and equipped with one 200-ton and one 15-ton traveling crane.

**ILLINOIS CENTRAL.**—This company closed bids on March 2 for the construction of a brick suburban passenger station at Seventy-ninth street, Chicago, as reported in the *Railway Age* of February 17.

**LONGVIEW, PORTLAND & NORTHERN.**—This company has applied to the Interstate Commerce Commission for a certificate authoriz-



ing the construction of a line from Longview to Olequa, Wash., 21½ miles, and thence 4 miles in a generally northwesterly direction and 4½ miles further in a southwesterly direction.

**MISSOURI, KANSAS & TEXAS.**—This company contemplates the construction of a car repair shop and an addition to the freight station at Tulsa, Okla.

**MISSOURI, KANSAS & TEXAS.**—This company has awarded a contract to the Graver Corporation, Chicago, for the construction of 24 water treating plants along its lines, as reported in the *Railway Age* of February 24. A plant of 30,000 gal. per hour capacity will be installed at Bellmead, Tex., and a 20,000 gal. capacity plant with a 100,000 gal. capacity storage tank will be constructed at Muskogee, Okla. Two plants of 15,000 gal. capacity each will be constructed at Vinita, Okla., and Hillsboro, Tex., the latter also having storage tank of 100,000 gal. capacity. A 12,000 gal. capacity station will be constructed at San Antonio, Tex., and 10,000 gal. capacity stations will be constructed at Warne, Okla., and Temple, Tex. Plants of 8,000 gal. capacity will be constructed at McDaine, Mo., Armstrong, Okla., and Altus. Stations of 5,000 gal. capacity will be constructed at Marthasville, Mo.; Pryor, Okla.; Frederick, Okla.; Leede, Okla.; Woodward, Okla.; Neosho Falls, Kans.; Chanute, Kans.; Georgetown, Tex.; Pershing, Tex.; San Marcos, Tex.; New Braunfels, Tex.; Lockhart, Tex.; Clear Fork, Tex., and Stamford, Tex.

**MISSOURI PACIFIC.**—This company has awarded a contract to the Railroad Water & Coal Handling Company, Chicago, for the construction of a 15,000 gal. per hour capacity water treating plant at Benton, Mo.

**NORTHERN PACIFIC.**—This company contemplates the construction of a subway under its yards at Auburn, Wash., to replace two viaducts now used.

**OREGON SHORT LINE.**—This company will construct a secondary main line from Orchard, Idaho, to Boise, estimated to cost over \$3,000,000.

**SOUTHERN PACIFIC.**—This company has applied for permission to construct a branch line 21 miles long in the Imperial Valley, Cal., from Calipatria, Cal., to a point seven miles north of Holtville.

**ST. LOUIS-SAN FRANCISCO.**—This company has awarded a contract to John M. Olsen, Springfield, Mo., for the construction of a passenger station at Springdale, Ark., reported in the *Railway Age* of January 13. This company has also awarded a contract to the same contractor for the construction of a mill shop building at Enid, Okla. This company has awarded a contract to the Jarrett Construction Company, Springfield, Mo., for a four-stall addition to the roundhouse at West Tulsa, Okla., and a five-stall addition to the roundhouse at Ft. Scott, Kan.

**ST. LOUIS-SAN FRANCISCO.**—This company closed bids on February 28 for the construction of the nine miles of second track from Valley Park, Mo., to Eureka, and the double tracking of the bridge over the Arkansas river at Tulsa, Okla., reported in the *Railway Age* of January 27.

**SOUTHERN PACIFIC.**—This company will construct a line from Oakridge, Ore., to Kirk, a distance of 118 miles.

**SOUTHERN PACIFIC OF MEXICO.**—This company will complete the construction of its line in Mexico from Tepic to Mexico City.

**TOLEDO, PEORIA & WESTERN.**—This company has awarded a contract to the Ogle Construction Company, Chicago, for the construction of a 100-ton capacity frame coaling station at Fairbury, Ill.

**THE AMERICAN RAILWAY EXPRESS COMPANY** now sends out of New York between 300 and 400 cars of merchandise every night, according to a statement made by R. E. M. Cowie, vice-president, in a recent address. The merchandise traffic by express has been very heavy recently because of delays in the movement of merchandise on freight trains caused by congestion at numerous points. Mr. Cowie says that the company has 100,000 employees; 28,500 offices, 3,600 motor (street) trucks, and 16,500 horse-drawn wagons.

## Railway Financial News

**CHICAGO & ALTON.**—*To Pay Interest.*—The protective committee for the 3 per cent refunding 50-year gold bonds, of which Charles A. Peabody is chairman, has arranged to advance to depositors the amount of the October 1, 1922, interest on the bonds of this issue. Depositors may obtain this advance by presenting certificates for stamping at the New York Trust Company or at the Illinois Trust and Savings Bank, Chicago, after February 20. The committee has extended the time during which the bonds may be deposited to and including March 20, 1923.

**DELAWARE, LACKAWANNA & WESTERN.**—*New Director.*—Paul Moore, member of Taylor, Bates & Co., New York, has been elected a director to succeed his father, William H. Moore, deceased.

*Income Account for 1922.*—The Delaware, Lackawanna & Western for the year ended December 31, 1922, shows a net income of \$10,475,928, equivalent to \$6 a share (par \$50) earned on the \$87,277,000 capital stock. This compares with \$19,158,403, or \$10.97, in 1921.

The income account for 1922 compares as follows:

	1922	1921	1920
Gross .....	\$74,622,344	\$85,977,815	\$83,340,063
Operating expenses .....	63,671,648	67,872,058	73,898,430
Taxes, etc. ....	4,904,409	5,324,361	4,542,596
Operating income .....	\$6,046,287	\$12,781,396	\$4,899,037
Other income .....	*10,801,774	13,478,143	19,382,212
Total income .....	\$16,848,061	\$26,259,539	\$24,281,249
Interest, rentals, etc. ....	6,372,133	7,101,136	9,622,805
Net income .....	\$10,475,928	\$19,158,403	\$14,658,444
Dividends .....	10,132,932	13,510,576	8,444,110
Surplus .....	\$342,996	\$5,647,827	\$6,214,334

\*Include \$4,699,064 adjustment of settlement U. S. Railroad Administration.

**DENVER & RIO GRANDE.**—*Suit Charges Loss of \$200,000,000.*—Supreme Court Justice Bijur has reserved decision on the application of George J. Gould, Kingdon Gould, Alvin W. Kreh and others, to vacate an order for examination before trial in an action instituted against them by the common and preferred stockholders of the Denver & Rio Grande. In the action the stockholders' committee moves that the defendants be directed to account for all funds alleged to have been wrongfully divested from the railroad's properties, which aggregate \$200,000,000.

**DETROIT & MACKINAC.**—*Authorized to Abandon Line.*—This company has been authorized by the Interstate Commerce Commission to abandon a branch line from Larocque to Hurst, Mich., 5.08 miles.

**EL PASO & SOUTHWESTERN.**—*Operations in 1922.*—See article on another page of this issue, entitled "El Paso & Southwestern Earnings Improve."

**ERIE.**—*Authorized to Extend Maturity Date.*—The Interstate Commerce Commission has authorized this company to extend the maturity date of \$4,617,000 of New York & Erie bonds for 10 years to March 1, 1933, and to assume obligation and liability therefor.

**ILLINOIS CENTRAL.**—*Asks Authority to Sell Bonds.*—The Interstate Commerce Commission has applied to the Interstate Commerce Commission for authority to sell \$13,447,000 of refunding mortgage bonds at 96½% to Kuhn, Loeb & Co. All but \$470,000 of these bonds had been previously authorized to be issued and the company asked additional authority for that purpose and also asked authority to increase the interest rate from 4 to 5 per cent. The proceeds are to be used to reimburse the treasury for expenditures in refunding bonds of subsidiary companies and in improvements to their lines and also to retire a government loan of \$3,848,000.

**ILLINOIS CENTRAL.**—*Bonds Legal for Savings Banks.*—The State Banking Department of New York has declared the \$13,447,000 Illinois Central refunding mortgage 5 per cent bonds recently purchased by Kuhn, Loeb & Co., legal for savings banks. The legality

of this issue for savings bank investment was placed in question by some investors in view of the fact that only 4 per cent interest was secured by the refunding mortgage, the additional 1 per cent interest being secured under a supplemental indenture.

LOUISVILLE & NASHVILLE.—*Stock Dividends Authorized.*—See article on another page of this issue.

LOUISVILLE & NASHVILLE.—*Equipment Trusts Sold.*—J. P. Morgan & Co. have sold \$6,300,000 4½ per cent equipment trust gold certificates, series E, at prices ranging from 94.81 and accrued dividend to 99.62, to yield 5 per cent for all maturities. The certificates mature in annual instalments of \$420,000 from December 1, 1923 to December 1, 1937, both inclusive. They are to be issued to provide for part of the cost of standard new equipment, which is to cost approximately \$7,951,115, of which over 20 per cent, or \$1,651,115 is to be paid in cash.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Asks Authority to Acquire Line.*—This company has applied to the Interstate Commerce Commission for authority to acquire the northern portion of the line of the Stanley, Merrill & Phillips, extending north from Polley, Wis.

NORFOLK & WESTERN.—*Asks Authority for Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to guarantee principal and dividends on \$8,000,000 of 4½ per cent equipment trust certificates to be issued by the Virginia Holding Corporation.

PENNSYLVANIA.—*Plea Against Restrictive Legislation.*—In a message accompanying the quarterly dividend checks sent out to the 138,545 stockholders of this company, President Samuel Rea says:

It is the opinion of the management of your railroad, that the active influence of the stockholders of the Pennsylvania Railroad Company should be enlisted against further restrictive legislation, and in favor of a sound public policy toward railroads.

It is essential that your management be permitted to operate your railroad on a business basis to make both ends meet, to earn a reasonable return on your investment, and to sustain railroad credit in order that new funds may be secured for additional transportation requirements.

Believing that the management of your railroad can produce better results with more freedom from legislative and regulatory restraint, we recommend and strongly urge each stockholder to use his or her influence to prevent the enactment of either national or state legislation which will further complicate the railroad situation by imposing upon the railroads an increase of unnecessary expense and burdensome regulation.

ST. LOUIS-SAN FRANCISCO.—*Meeting Postponed.*—The special meeting of stockholders scheduled for February 21 at St. Louis to act upon the acquisition of the International Great Northern has been postponed to March 7.

WHEELING & LAKE ERIE.—*Six Months' Guaranty Certified.*—The Interstate Commerce Commission has issued a final certificate stating the amount of this company's guaranty for the six months' period of 1920 as \$1,821,403, of which \$865,403 was still to be paid.

WESTERN PACIFIC.—*Equipment Trusts Sold.*—Blair & Co., Inc., and E. H. Rollins & Co., have sold \$5,600,000 5½ per cent equipment trust certificates, dated March 1, 1923.

The certificates mature in serial instalments of \$375,000 annually from March 1, 1924 to March 1, 1937, and \$350,000 on March 1, 1938, at 100 and accrued dividend, to yield 5½ per cent. These certificates are to be issued to provide for part of the new equipment which the company has contracted to purchase at a cost of approximately \$6,996,000.

### Dividends Declared

Boston & Albany.—\$2.00, quarterly, payable March 31 to holders of record February 28.

Buffalo & Susquehanna.—Common, 1¼ per cent, quarterly; common, extra, 2½ per cent; both payable March 30 to holders of record March 15.

New York, Lackawanna & Western.—\$1.25, quarterly, payable April 1 to holders of record March 14.

Reading Company.—2nd preferred, 1 per cent, quarterly, payable April 12 to holders of record March 26.

### Trend of Railway Stock and Bond Prices

	Feb. 27	Last Week	Last Year
Average price of 20 representative railway stocks .....	68.81	68.90	60.28
Average price of 20 representative railway bonds .....	84.29	85.14	82.57

## Railway Officers

### Executive

J. R. Koontz, whose election to vice-president in charge of traffic of the St. Louis-San Francisco, was reported in the *Railway Age* of February 17, was born on September 1, 1868,



J. R. Koontz

at Shippensburg, Pa. He entered railway service in July, 1889, as a clerk in the office of the general auditor of the Atchison, Topeka & Santa Fe, at Topeka, Kan., and served in this capacity for a short time. Later, he was promoted to rate clerk and to chief tariff clerk in the freight department at the same place. He was subsequently promoted to chief clerk in the general freight department, and served in this capacity until May 1, 1904, when he was promoted to general freight agent, with headquarters at Topeka.

His next advancement came on March 1, 1920, when he was promoted to assistant freight traffic manager, with the same headquarters. He was engaged in the duties of this position when elected to vice-president in charge of traffic of the St. Louis-San Francisco. Mr. Koontz assumed his new duties on March 1. He succeeds Alexander Hilton, former vice-president of the St. Louis-San Francisco, who died on December 25.

S. J. Hungerford, vice-president of the Canadian National, has been appointed vice-president in charge of operation and maintenance of the entire system, into which the Grand Trunk has recently been consolidated. Mr. Hungerford was born on July 16, 1872, near Bedford, Que., and received a high school education. He entered railway service in 1886 as a machinist's apprentice on the Canadian Pacific at Farnham, Que. From 1891 to 1897 he served as a machinist at various points in Quebec, Ontario and Vermont. From 1897 to 1900 he was assistant foreman at Farnham, Que. During the latter year he was promoted to locomotive foreman at Megantic, Que. From 1901 to 1903 he served in a similar capacity at Cranbrook, B. C. In 1903 he was appointed master mechanic at Calgary, Alta. In 1907 he was appointed superintendent of locomotive shops at Winnipeg. Seven years later he became superintendent of Western Lines of the Canadian National at Winnipeg. A month later he was appointed superintendent of rolling stock of the entire system with headquarters at Toronto. In 1917 he was advanced to general manager of the Eastern Lines with headquarters at Toronto. In 1918 he was appointed assistant vice-president of the Canadian National. In 1920 he was appointed vice-president in charge of operation, which posi-



S. J. Hungerford



tion he now continues with the enlarged Canadian National system.

**W. D. Robb**, ranking vice-president of the Grand Trunk, has been appointed vice-president in charge of natural resources, developments and colonization of the Canadian National, with which the Grand Trunk has been recently consolidated.



W. D. Robb

Mr. Robb will also have charge of the express and telegraph departments, the insurance department and pension funds. He was born on September 23, 1857, at Longueuil, Que., and was educated at Sherbrooke Academy, Sherbrooke, Que. He entered railway service in 1871 as an apprentice in the motive power department at Port Levi, Que. From 1874 to 1883 he was apprentice in the same department at Montreal. He then served for a few months as night roundhouse foreman at Port St. Charles and was then appointed foreman at Belleville, Ont. In 1897 he was appointed master mechanic at London, Ont., and eight months later was transferred in a similar capacity to Toronto. In 1901 and 1902 he served as acting superintendent of motive power at Montreal and from 1902 to 1917 as superintendent of motive power. In the latter year he was appointed vice-president in charge of motive power and car department and the following year was promoted to vice-president in charge of operation. In 1922 he became ranking vice-president and general manager in which position he served until the time of his recent appointment.

#### Financial, Legal and Accounting

**D. P. Pace**, assistant industrial, land and tax commissioner of the Gulf Coast Lines, with headquarters at Houston, Tex., has been promoted to industrial, land and tax commissioner, with the same headquarters, succeeding **W. J. Doyle**, who has resigned. **A. C. Jackson** has been appointed assistant industrial, land and tax commissioner, with headquarters at Houston, Tex., succeeding Mr. Pace.

**W. G. Hunt**, whose promotion to assistant auditor of the Atchison, Topeka & Santa Fe, Coast Lines, with headquarters at Los Angeles, Cal., was reported in the *Railway Age* of February 10, was born on September 4, 1891, at Britt, Iowa. He entered railway service on August 15, 1910, as an engine wiper on the Chicago, St. Paul, Minneapolis & Omaha. On December 1, 1911, he entered the service of the Chicago, Milwaukee & St. Paul as a timekeeper and clerk in the office of the superintendent and served in this capacity until December, 1913, when he was appointed clerk in the auditor's office of the Atchison, Topeka & Santa Fe, Coast Lines, at Los Angeles, Cal. He was promoted to traveling accountant on May 1, 1917, with headquarters at Los Angeles, and was promoted to chief clerk in the office at Amarillo, Tex., on February 15, 1919. He was transferred in the same capacity to Topeka, Kan., on August 15, 1919, serving in this position until December 15, 1920, when he was promoted to assistant auditor of disbursements, with the same headquarters. He was serving in this capacity on January 16, 1923, when he was promoted to assistant auditor of the Coast Lines, with headquarters at Los Angeles, Cal.

#### Operating

**E. G. Goforth**, general manager of the International Great Northern with headquarters at Palestine, Tex., has resigned his position to engage in private business.

**A. R. Ayers**, superintendent of motive power of the New York, Chicago & St. Louis with headquarters at Cleveland, Ohio, has been promoted to assistant general manager with the same headquarters.

**S. V. Bevington**, assistant superintendent of the Cleveland-Indianapolis division of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Bellefontaine, Ohio, has been transferred to the Cincinnati-Sandusky division, with headquarters at Springfield, Ohio.

**J. E. Crawford**, whose promotion to assistant general manager of the Norfolk & Western with headquarters at Roanoke, Va., was announced in the *Railway Age* of February 17, page 450, was born on December 1, 1876, at San Diego, Cal. Mr. Crawford studied engineering at the University of Pennsylvania for two years and entered railway service in July, 1903, as bridge engineer for the Norfolk & Western. In May, 1914, he was promoted to chief engineer and served in that capacity until the time of his recent advancement.

**E. J. Cleave**, superintendent of the Philadelphia division of the Pennsylvania, has been, on account of ill health, transferred to other duties in the office of the general manager at Philadelphia. **W. L. Ekin**, superintendent of the Conemaugh division, has been promoted to superintendent of the Philadelphia division. **A. C. Watson**, superintendent of the Schuylkill division, has been appointed superintendent of the Conemaugh division. **T. C. Herbert**, superintendent of the Peoria division in the Southwestern region, has been transferred to the Eastern region as superintendent of the Schuylkill division.

**H. C. Weller**, whose appointment as general superintendent of the Norfolk & Western with headquarters at Bluefield, W. Va., was announced in the *Railway Age* of February 17, page 450, was born in 1871 at Bainbridge, Ohio. He was educated in the common schools and entered railway service on May 14, 1886, as a telegrapher for the Norfolk & Western. In September, 1895, he was promoted to train dispatcher and to assistant trainmaster in August, 1905. Two years later he was promoted to terminal trainmaster at Bluefield and in the following year was transferred to trainmaster of the Pocahontas division. On December 1, 1912, he was advanced to superintendent of the Pocahontas division and was transferred in a similar capacity to the Scioto division on January 1, 1918, in which latter capacity he was serving at the time of his recent advancement.

**Thomas Kilpatrick**, whose promotion to general manager of the Pacific Great Eastern, with headquarters at Vancouver, B. C., was reported in the *Railway Age* of February 3, was born on April 27, 1867, at Simcoe, Ont. He entered railway service in May, 1884, in the engineering department of the Canadian Pacific and for one year was engaged in construction work on the north shore of Lake Superior. In June, 1885, he was transferred to the mountain section in British Columbia. He entered a bridge gang in April, 1886. He was promoted to bridge foreman in April, 1887, and served in this capacity until August, 1893, when he was promoted to bridge and building master of the same district. He was promoted to superintendent of district No. 1 of the British Columbia division, with headquarters at Revelstoke, B. C., in May, 1901, and held this position until December, 1912, when he left railway service to engage in private business. In August, 1915, he was appointed inspector and superintendent of highway bridges for the government of the Province of British Columbia, in which position he was serving on February 1, 1923, when he was promoted to general manager of the Pacific Great Eastern.

**R. E. McCarty**, general manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, has been appointed assistant to the vice-president in charge of the Central region. **M. W. Clements**, general superintendent of the Lake division, with headquarters at Cleveland, Ohio, has been promoted to general manager of the Central region, with headquarters at Pittsburgh. **H. E. Newcomet** has been advanced from superintendent of the Cleveland & Pittsburgh division to general superintendent of the Lake division, succeeding Mr. Clements. **Guy Scott**, superintendent of the

Akron division, has been appointed superintendent of the Cleveland & Pittsburgh division. **Otto Schroll**, superintendent of the Pan-Handle division, has become superintendent of the Wheeling division. **O. C. Schaad**, superintendent of the Eastern division, has been appointed superintendent of the Akron division. **J. H. Redding**, superintendent of the Wheeling division, has been transferred to the Erie & Ashtabula division. **J. F. Patterson**, superintendent of the Erie & Ashtabula division, has become superintendent of the Eastern division. **W. C. Higginbottom**, superintendent of the Richmond division, in the Southwestern region, has been transferred to the Central region as superintendent of the Pan-Handle division. The position of superintendent of the Richmond division has been filled by the promotion of **G. R. Barry**, engineer of the Logansport division, Northwestern region.

### Mechanical

**E. A. Rauschart**, master mechanic of the Montour Railroad at Coraopolis, Pa., has been promoted to mechanical superintendent, the office of master mechanic having been abolished.

**J. E. Davenport** has been appointed superintendent of fuel and locomotive performance of the New York Central, with headquarters at Utica, N. Y., succeeding Robert Collett, who has resigned to enter the service of another company.

**George T. Strong** has been appointed master mechanic on the New River division of the Virginian with headquarters at Princeton, W. Va., succeeding G. H. Langton, resigned. **Frank Welboan** has been appointed shop superintendent at Princeton.

### Engineering, Maintenance of Way and Signaling

**R. G. Aylsworth**, resident engineer of the Chicago, Burlington & Quincy, with headquarters at Denver, Col., has been promoted to district engineer, maintenance of way for the Wyoming district, with headquarters at Alliance, Neb.

### Purchasing and Stores

**R. C. Vaughan** has been appointed director of purchases and stores of the Canadian National.

**B. Perkins** has been appointed fuel agent of the Kansas division of the Union Pacific, with headquarters at Armstrong, Kansas City, Kan.

### Obituary

**F. E. Connors**, vice-president and general manager of the Spokane & Eastern, died at Spokane, Wash., on February 27.

**William McNab**, chairman of the valuation committee of the Grand Trunk and past president of the American Railway Engineering Association, died at Montreal on February 23.

**A. G. Huckin**, vice-president and general manager of the Illinois Northern and general manager of the Chicago, West Pullman & Southern, with headquarters at Chicago, died on February 26.

**George Parker**, for the past four years superintendent of the Eastern division of the Dominion Express Company, died on February 25 at his home in Toronto. Mr. Parker had been in the service of the company for 25 years.

**Alexander Ross**, who was engineer-in-chief of the Great Northern Railway of England for 14 years up to 1911, died on February 3, at the age of 78. Mr. Ross was one of the most prominent civil engineers of England. He had been in railroad service throughout his active life and was president of the Institution of Civil Engineers in 1915. During the war, he was a member of the Metropolitan Munitions Committee.

**F. C. Marshall**, treasurer of the Duluth & Iron Range, with headquarters at Duluth, Minn., died in that city on February

19. Mr. Marshall was born on August 28, 1849, at Sandusky, Ohio. He entered railway service on the Chicago, Rock Island & Pacific in October, 1871, as station agent and until January, 1904, served consecutively as traveling auditor, paymaster and assistant treasurer. In January, 1904, he was appointed treasurer of the Duluth & Iron Range, with headquarters at Duluth, Minn., in which position he was serving at the time of his death.

**G. R. Peck**, formerly general counsel of the Chicago, Milwaukee & St. Paul, died in a sanitarium in Chicago on February 22. Mr. Peck was born on May 15, 1843, at Cameron,



G. R. Peck

Steuben county, N. Y., and graduated from Palmyra School, Palmyra, Wis., in 1855. He then entered Milton College and received his degree in law in 1861. After 20 years of general practice of law, Mr. Peck entered railway service in 1881, when he was appointed general solicitor of the Atchison, Topeka & Santa Fe, with headquarters at Chicago. He served in this capacity until September, 1895, with the exception of the years 1884 and 1885, when he again engaged in general practice. In September, 1895, he resigned from his position with the Santa Fe to become general counsel of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago. He continued in this service until January 1, 1911, when he retired from active practice. Mr. Peck was 80 years of age at the time of his death.

**J. E. Blunt**, formerly chief engineer of the Chicago & North Western, whose death at Pasadena, Cal., on February 20, was reported in the *Railway Age* of February 24, was born on



J. E. Blunt

December 25, 1833, at Brainerd, Tenn. He entered railway service in 1851 as a rodman on the Memphis & Charleston. He was promoted consecutively to assistant engineer and resident engineer for the same company and in 1859 was appointed chief engineer of the Georgia Air Line. He served in this capacity until 1862, when he was appointed assistant engineer of the Chicago & Galena Union, which position he held for two years. When the Chicago & Galena Union was taken over by the Chicago & North Western in 1869, he was appointed division engineer of what then became the Galena division of the Chicago & North Western, and served in this capacity until 1878, when he was appointed chief engineer of the Dakota Central, which is now a part of the Chicago & North Western. He was appointed chief engineer of the Chicago & North Western in 1888, and held this position until December 1, 1899, when he retired from active service, but continued to act as consulting engineer for the same company. During the last years of his life Mr. Blunt withdrew from the service entirely and made his home in Pasadena, Cal.